A Learning Alberta

Profile of Alberta's Advanced Education System

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A Learning Alberta

Alberta will be a province where all Albertans have access to higher learning opportunities. It will be a province that aggressively seizes the opportunities of the future by leveraging the skills, talents and imaginations of its citizens. And it will be a province that will enjoy even greater success in the century ahead thanks to a solid foundation and legacy of higher learning that we will create together.

Albertans will be inspired to reach their full potential through advanced learning - to move beyond where they are now to where they can be. But most of all, Alberta will become a true learning province, where advanced education and lifelong learning is the cornerstone of a healthy, prosperous and progressive society.

Dave Hancock, Riverbend Ragg-Times

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Executive Summary

This document provides supporting information for Alberta Advanced Education's *A Learning Alberta* initiative. The initiative aims to establish a new vision and policy framework to guide Alberta's advanced education system through current and future challenges. This document identifies key data and trends for Alberta and other jurisdictions based on four themes – accessibility, quality, affordability and innovation.

Accessibility

Ensuring reasonable access to advanced education studies is a key issue for government as well as students and their families, given the broad range of personal and societal benefits that result from a well-educated population.

Between 1997-98 and 2002-03 total enrolment at Alberta's publicly funded post-secondary institutions increased 22.2%, with growth stronger in the private university college sector and lower in the technical institute sector. On a program basis, enrolment growth was higher in apprenticeship, certificate, university transfer, applied degree and master's programs compared to trade certificate, diploma and skill training programs. Enrolment growth of females exceeded that of males for the system as a whole over this time period, with the gender gap most pronounced within the university and college sectors.

Compared to other provinces, Alberta has had among the highest advanced education enrolment increases in the country since 1997-98. Alberta had the third highest increase in full-time college enrolments, the highest increase in both full and part-time university undergraduate enrolments, and the second highest increase in both full and part-time university graduate enrolments.

Quality

Given the substantial investment that individuals make when enrolled in Alberta's advanced education system, quality outcomes are a critical consideration when assessing the success of the system.

In terms of advanced education completion rates, between 1999-00 and 2002-03 Alberta's university completion rate declined slightly from 64% to 61% while the college/technical institute completion rate also declined slightly from 62% to 59%. Between 1997-98 and 2002-03, Alberta's apprenticeship completion rate increased slightly from 75% to 76%.

Despite the lower rates, the number of credentials awarded by Alberta's publicly funded post-secondary institutions has increased in recent years. Between 1997-98 and 2002-03, credentials awarded system-wide have increased 26.7%, with growth stronger in the private university college sector and lower in the technical institute sector (similar to the trend observed with enrolments). On a program basis, there was strong growth in credentials awarded for certificate, applied degree, bachelor's degree and master's degree programs, with lower growth (and even decreases) in skill training, trade certificate, diploma and earned doctorate credentials awarded.

On an inter-provincial basis, Alberta had the fourth highest increase in the number of college certificate and diplomas awarded since 1997, the second highest increase in bachelor's and other undergraduate degrees, as well as the highest increase in master's degrees awarded. However, from 1997 to 2001 the number of earned doctorates awarded within Canada decreased, with Alberta mirroring the national trend.

Alberta continues to have among the highest educated population within Canada. In 2003, Alberta had the fourth lowest proportion of its age 15 plus population with less than high school completion as their highest level of educational attainment. Similarly, Alberta had the third highest proportion of its population with a university undergraduate degree and the fifth highest proportion with a graduate degree.

Affordability

The financial investment in advanced education is substantial, not only for students and their families who contribute through the payment of tuition and other fees, but also for taxpayers and for institutions who contribute through the generation of other revenues that are used to support the teaching function.

In terms of total expenditures on advanced education, between 1997-98 and 2001-02 Alberta had the fifth highest increase in total expenditures on trade/vocational education, the highest increase in college sector expenditures, and the highest increase in university sector expenditures. On a per student basis, by 1999-00 Alberta had the third highest and fourth highest per student expenditures within the college and university sectors respectively.

For public expenditures on advanced education (this excludes contributions made by students and their families), Alberta continues to rank well compared to other provinces. Between 1997-98 and 2001-02 Alberta had the fifth highest increase in public expenditures on trade/vocational education, the highest increase in college sector public expenditures, and the third highest increase in university sector public expenditures.

Alberta also has a strong student financial assistance program to ensure that financial need is not a barrier to advanced education studies. Between 1997-98 and 2003-04 total needs-based student financial assistance increased 38.2%, with the increase in non-repayable grants outpacing the increases in repayable loan assistance. Additionally, between 1997-98 and 2003-04 there was a 201.0% increase in the amount of merit-based scholarships awarded.

The substantial increases in non-repayable grants and scholarships have helped Alberta students graduate with among the lowest net government debt in the country. Alberta college graduates had the fourth lowest debt, bachelor's graduates had the second lowest debt, while master's and earned doctorate graduates had the third lowest and lowest net government debt amounts respectively.

Innovation

Innovation activities such as research and commercialization are important aspects of Alberta's advanced education system in that they contribute to the creation of new knowledge, products and services that advance Alberta's economy, and improve the health and well being of Albertans and others.

Total sponsored research revenues are an important measure of institutions' success in leveraging research funding from various granting councils, agencies and private sources. Between 1997-98 and 2002-03 sponsored research revenue in Alberta increased 84.7%, below the national average and the fourth lowest increase in the country. Total gross expenditures on research and development (GERD), another measure of research activity, confirm that Alberta had a below average increase in research activity between 1997 and 2001. However, when GERD is compared on a per capita basis, Alberta had the third highest expenditure level (after Ontario and Québec).

GERD as a percentage of a jurisdiction's economic output (measured as gross domestic product) is an internationally recognized measure of relative research intensity. Due to Alberta's high gross domestic product, it had one of the lowest GERD to economic output ratios in the country (1.0%). Similarly, Canada's ratio of 1.8% was below many other jurisdictions, including knowledge economy competitors such as Japan, the United States, Germany and France.

Measures of commercialization indicate that Alberta's two research-intensive universities are able to compete with other research-intensive institutions across the country. Specifically, the University of Calgary consistently obtained higher than average results for measures of license revenues, invention disclosures, patents issued and start-up companies formed, while the University of Alberta also ranked well on these commercialization measures.

1 INTRODUCTION

Alberta's advanced education system is facing a number of significant challenges over the next decade and beyond including increasing demand for advanced education learning opportunities, ongoing integration of technology into the teaching and research environment, globalization, the need to transition to a knowledge economy, the need to provide a breadth or programming to be responsive to learner demands, and continuing expansion of research and creation of new knowledge. In considering future challenges and opportunities it is also important to consider Alberta's progress over the past.

This document reviews Alberta's advanced education system for the period 1997-98 onwards. 1997-98 was selected as the base year because it provides several years worth of data and complements an earlier analysis: *Profile of Alberta's Adult Learning System: A Context for Discussion.*[1]

1.1 Policy Context

Alberta's Minister of Advanced Education has initiated a comprehensive review of the province's advanced education system. This initiative, *A Learning Alberta*, will identify a new vision as well as policy outcomes for the system. Together the vision and policy framework will work towards creation of a learning society in Alberta – one that inspires and motivates all Albertans to participate in advanced education learning opportunities throughout their lifetime – to maximize their own potential and to maximize their contributions to society, Alberta's economy, and future generations.

To assist in development of the vision and policy framework, three discussion documents have been prepared: *Ensuring Affordability in Alberta's Advanced Education System*; *Investing in Alberta's Advanced Education System*; and *Advanced Education in Rural Alberta: Challenges and Opportunities*. Each discussion document identifies key issues, outlines challenges to achieving policy objectives, and identifies advanced education system opportunities. A fourth document, *Advanced Education: A Cross-jurisdictional Overview of Accessibility, Affordability and Quality*, provides background on advanced education programs and policies in other jurisdictions.

This document, the fifth in the series, supports the discussion documents and cross-jurisdictional overview by presenting historical data and trends. These trends can help inform stakeholder discussions, and in turn, support the review's goal of developing a new vision and policy framework for Alberta's advanced education system.

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[1] http://www.advancededucation.gov.ab.ca/pubstats/AdultLearn/PostSecProfile.pdf.

1.2 Benefits of Advanced Education

Advanced education systems play an increasingly critical role in training and preparing individuals for life in a global, knowledge-based economy.[2] Advances in communications, technology and transportation – combined with more open labour markets and increasing interdependence of national economies – has reduced jurisdictional barriers. By providing technologically advanced learning opportunities in a culturally diverse environment, advanced education systems play a key role in allowing jurisdictions to remain (or become) active global participants both socially and economically.[3]

In recognition of the increasingly critical role of advanced education, the Government of Alberta has taken a number of steps to increase the role of the province's advanced education system. Government has made substantial advanced education commitments in the Throne Speech, tabled Bill 1 the *Access to the Future Act*, and announced substantial funding increases in Budget 2005. These initiatives followed creation of the *Post-secondary Learning Act* and inclusion of the Leading in Learning and Unleashing Innovation pillars within government's 20-year strategic plan.

Advanced education systems provide substantial benefits to society, but also provide individuals with economic and social benefits that contribute to a higher quality of life. Economic benefits include improved chances of securing employment, fewer and shorter periods of unemployment, and higher earnings potential.[4] Data projections suggest that by 2013, 64% of all new jobs created in Canada will require some level of advanced education. Additionally, the difference in the unemployment rate between those with high school completion and those with an advanced education credential has averaged over 4% across Canada throughout the 1990s and early 2000s.[5]

With respect to earnings potential, based on 2003 Statistics Canada Labour Force Survey data, the average Alberta high school graduate could expect to earn $31,281 before taxes. However, with higher levels of educational attainment average gross earnings rise to $39,274 for individuals with a certificate or diploma, $46,745 for individuals with a bachelor's degree and $53,366 for individuals with a graduate degree (master's and PhD degrees). Higher levels of educational attainment also are associated with generally lower levels of unemployment. In 2003 the Alberta unemployment rate for individuals with high school completion was 4.7%, compared to 3.8% for individuals with a graduate degree.[6]

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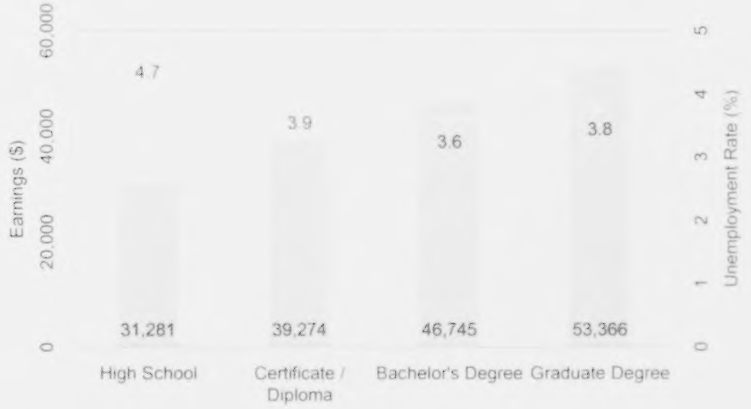
[2] Statistics Canada. *Innovation, Training and Success*, 1999, Catalogue 11F0019MPE no. 137, p. 1.

[3] Organisation for Economic Co-operation and Development. *Education at a Glance: OECD Indicators 2002*, 2002, p. 18.

[4] Statistics Canada. *Canadian Economic Observer*, March 2003, Catalogue 11010, p. 3.10.

[5] Statistics Canada. *Canadian Economic Observer: Historical Statistical Supplement 2002/03*, July 2003, Catalogue 11210XPB, p. 28.


Average Annual Earnings and Unemployment Rates by Level of Educational Attainment, 2003

In addition to economic benefits, the social benefits that can accrue to an individual through participation in advanced education studies are considerable. These benefits include improved health, increased environmental awareness, improved political and community participation (citizenship) as well as a higher quality of life.[7,8] Specifically, it has been found that, on average, individuals with higher levels of educational attainment tend to smoke less, exercise more, have better dietary habits and handle stress better than individuals with lower education levels. Higher levels of educational attainment are also associated with improved life choices regarding career, spouse and family.[9]

Overall, Alberta's advanced education system provides substantial positive economic and social outcomes that accrue to both individuals and to society as a whole. Continuing to provide high quality advanced education learning opportunities to interested and able Albertans is critical to ensuring that individual Albertans and the province as a whole remain economically active and socially responsible global participants.

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[6] Statistics Canada, *CANSIM*, Table 282-0004; Statistics Canada, special tabulation for Alberta Advanced Education.

[7] Alberta Government, *A Framework for Reform: Report of the Premier's Advisory Council on Health*, December 2001, p. 6.

[8] Organisation for Economic Co-operation and Development, *Education at a Glance: OECD Indicators 2003*, 2003, p. 4.

[9] Barbara L. Wolfe and Robert H. Haveman, "Social and Non-market Benefits from Education in an Advanced Economy", *Education in the 21st Century: Meeting the Challenges of a Changing World*, proceedings from the 47th Economic Conference, Federal Reserve Bank of Boston, June 2002, pp. 97-131.

2 ACCESSIBILITY

Given the broad range of personal and societal benefits that result from a well-educated population, ensuring high levels of access to advanced education learning opportunities is a key objective for government. This chapter presents data on a number of accessibility measures including literacy levels, non-credit enrolments, high school completion, credit enrolments, and advanced education access for traditionally under-represented groups.

2.1 Literacy in Canada

High literacy levels are becoming an absolute requirement in order to participate both socially and economically within a global, knowledge-based economy. Further, they are necessary to succeed in an advanced education environment.

Results from a recent survey (coordinated jointly by Statistics Canada, the Organisation for Economic Co-operation and Development and organizations from other countries) confirm earlier studies indicating that many Canadians continue to have difficulties meeting modern day literacy and numeracy related demands.[10]

The 2003 Adult Literacy and Life Skills Survey measured literacy skills of Canadians age 16 to 65 across four literacy dimensions: prose (ability to understand textual information), document literacy (ability to understand forms, maps and charts), numeracy (ability to manage mathematical demands) and problem solving (ability to reach a goal by identifying a path of direction). Results for each dimension were scored on a five-point scale, where level three was identified by experts as the minimum level necessary to meet the demands of a global, knowledge-based economy.

Canadian Literacy Levels (%) by Literacy Dimension, Adult Literacy and Life Skills Survey, 2003

	Level 1	Level 2	**Sub-total**	Level 3	Levels 4 & 5
Prose	14.6	27.3	**41.9**	38.6	19.5
Document Literacy	15.6	27.0	**42.6**	36.9	20.5
Numeracy	19.5	30.3	**49.8**	33.4	16.9
Problem Solving	29.7	38.8	**68.5**	26.2	5.4

Note: Numbers may not add due to rounding.

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[10] Statistics Canada, *The Daily*, May 11, 2005, Catalogue 11001XIE, p. 5.

Results indicate that a substantial portion of Canadians age 16 to 65 do not meet minimum literacy levels. Specifically, 41.9% do not meet prose literacy levels, 42.6% do not meet document literacy levels, while 49.8% and 68.5% do not meet numeracy and problem solving levels respectively.[11] This represents approximately three million Canadians age 16 to 65 with reading difficulties (note that inter-provincial data from this survey are not yet available).

The Adult Literacy and Life Skills Survey also found that parental educational attainment had a significant impact on the literacy scores of youth. Specifically, youth whose parents had completed twelve years of schooling scored twenty-four points higher on the prose literacy scale than youth whose parents only completed eight years of schooling.[12]

2.2 Access to Community Programs

Alberta Advanced Education, through its Community Programs branch, supports a number of associations and programs that help Albertans improve their literacy and other foundation skills. These associations and programs include the Community Adult Learning Councils (association who provide programming that includes adult basic literacy, English or French as a second language, employability enhancement and community issues), the volunteer tutor adult literacy program and the parent-child literacy strategy (this strategy focuses on socio-economically disadvantaged families with preschool-aged children).

Enrolment statistics indicate that Albertans continue to rely heavily on these programs for assistance in improving their literacy and other foundation skills. From 1997 to 2004, participation in the Adult Basic Literacy program increased 84.8% while community issues programming growth was also strong at 17.2%. Registrations in other Community Adult Learning Council programs have decreased somewhat between 1997 and 2004, but overall participation in Council programs increased 2.5% over the period.[13]

Similar to select Council programs, participation in the volunteer tutor adult literacy program has decreased somewhat between 1997 and 2004 (a 25.0% decrease in the number of learners and a 23.3% decrease in the number of tutors). However, it is important to note that tutor hours remained constant over this period, dropping slightly from 76,100 hours in 1997 to 74,688 hours in 2004.

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[11] Statistics Canada and Organisation for Economic Co-operation and Development. *Learning a Living: First results of the Adult Literacy and Life Skills Survey*. 2005. Catalogue 89603XWE, p. 50.

[12] Statistics Canada and Organisation for Economic Co-operation and Development. *Learning a Living: First results of the Adult Literacy and Life Skills Survey*. 2005. Catalogue 89603XWE, p. 229.

[13] Alberta Advanced Education, Community Programs Branch.

Participant Headcount and Hours for Community Programs, 1997 and 2004

	1997	2004	% Change
Community Adult Learning Councils			
Adult Basic Literacy	2,334	4,313	84.8
English or French as a Second Language	6,048	4,112	-32.0
Employability Enhancement	19,347	15,461	-20.1
Community Issues	42,026	49,249	17.2
Other	18,375	17,190	-6.4
Total	**88,130**	**90,325**	**2.5**
Volunteer Tutor Adult Literacy Program			
Literacy Learners	2,626	1,969	-25.0
Volunteer Tutors	2,055	1,577	-23.3
Tutor Hours	76,110	74,688	-1.9
Total	**4,681**	**3,546**	**-24.2**

In addition to the Community Adult Learning Councils and the volunteer tutor adult literacy program, a new program aimed at socio-economically disadvantaged families was established in 2002-03. This program, the Parent-Child Literacy Strategy, funds projects to enhance literacy levels of disadvantaged families with preschool-aged children. By 2003-04 there were just under 7,000 parents/caregivers and just under 7,500 children participating in this program.[14]

2.3 High School Completion in Alberta

High school completion, much like literacy levels, is an important consideration in any discussion of advanced education access. However, it is important to note that a significant number of programs, particularly those offered at the four campuses of the former Alberta Vocational College (see Appendix A for a review of Alberta's advanced education system), do not require high school completion for program entry.[15] For example, of the 51,000 Alberta students registered in Grade 12 in 1999-00, over 2,000 did not obtain high school completion but were taking advanced education studies at an Alberta institution in the Fall of 2000.[16]

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[14] Alberta Advanced Education, Community Programs Branch.

[15] Alberta Learning, *Post-secondary Transitions in Alberta: Educational Outcomes of 1999/2000 Grade 12 Students*, 2002, p. 21.

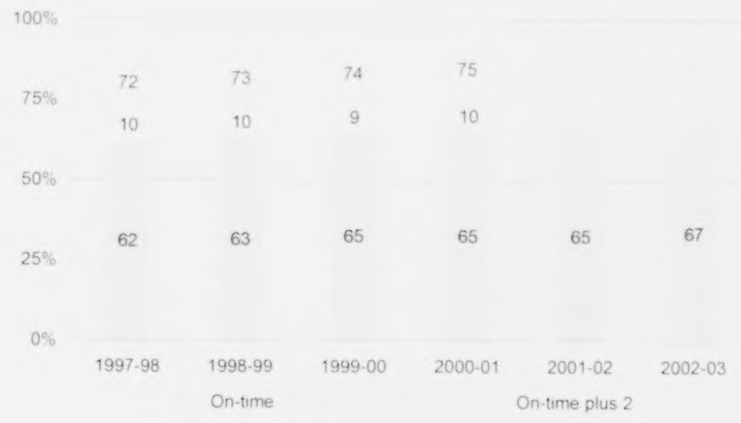
[16] Alberta Learning, *Post-secondary Transitions in Alberta: Educational Outcomes of 1999/2000 Grade 12 Students*, 2002, p. 5.

2.3.1 *Overall Completion*

Alberta Education regularly reports on high school completion rates. Two figures are reported, on-time completion and on-time plus two years. The measure tracks each Grade 10 entry cohort for five years – the proportion completing high school within three years comprises the on-time figure whereas the proportion completing within five years comprises the on-time plus two years figure.

Over the last six years, Alberta's on-time high school completion rate has increased 5% – rising from 62% in 1997-98 to 67% in 2002-03. For the 1997-98, 1998-99 and 2000-01 Grade 10 entry cohorts, an additional 10% of students completed within two years, while an additional 9% of the 1999-00 entry cohort completed within two years (on-time plus two data is not yet available for the 2001-02 and 2002-03 cohorts).[17]

On-time and On-time Plus 2 High School Completion Rates, 1997-98 to 2002-03



Any discussion of high school completion rates must consider Alberta's strong economy and tendency to draw high school students into the workforce prior to completion. Although high school completion is not always a prerequisite for secure, high-paying employment (particularly within a strong economy), it remains necessary for entry into the majority of advanced education programs and increasingly necessary for long-term employment security.

To ensure Albertans remain active participants in the global, knowledge-based economy, it is imperative to encourage a higher proportion of Alberta high school students to complete. To this end, Alberta Education and Alberta Advanced Education continue to collaborate with stakeholders on various initiatives aimed at improving high school completion rates including:

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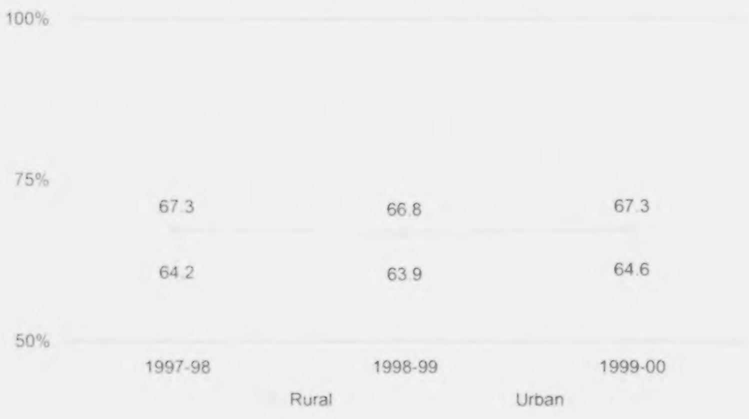
[17] Alberta Learning. *Annual Report 2003/2004*. 2004 p. 29.

- the ongoing Alberta Children and Youth Initiative, aimed at removing barriers to the transition of youth to adulthood;
- the Alberta Initiative for School Improvement, aimed at continuous improvement of teaching and student achievement in Alberta;
- the Early Literacy Initiative, aimed at improving literacy skills to create a solid foundation for high school completion;
- outreach programs that provide educational alternatives to students;
- First Nation, Métis and Inuit education programs, to support increased student achievement and community involvement for Aboriginal students;
- alternative high school streams such as the Registered Apprenticeship Program (RAP), Integrated Occupation Program (IOP), Career and Technology Studies (CTS), and the Green Certificate; and
- supports for career planning, including the required Career and Life Management course and the resource-rich Alberta Learning Information Service (ALIS) web site.

2.3.2 Rural and Urban Completion

Alberta Advanced Education supports the Rural Development Strategy, a medium-term strategy aimed at ensuring rural communities remain vibrant and sustainable contributors to a prosperous Alberta.[18] As part of this initiative, data has been gathered on various rural indicators including high school completion and advanced education enrolments.

On-time High School Completion by Rural/Urban status, 1997-98 to 1999-00



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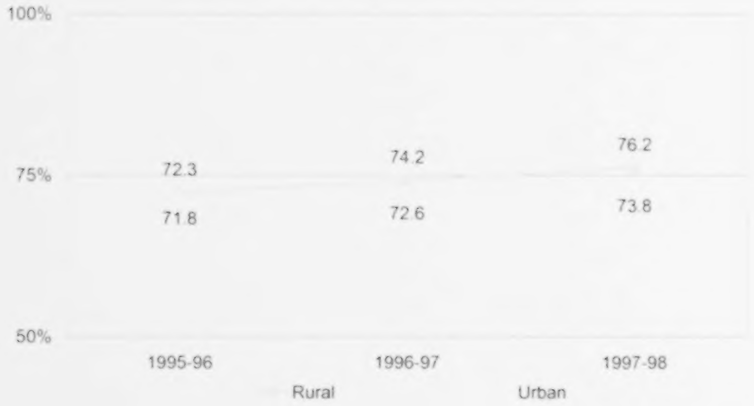
[18] Government of Alberta. *2005 Budget: Investing in the Next Alberta*. 2005, p. 47.

Interestingly, Alberta Education data indicate that rural students are completing high school at a rate that slightly exceeds that of their urban counterparts. Using a population of 10,000 to distinguish rural students from urban students, Alberta's Grade 10 rural entry cohort consistently had a higher on-time completion rate between 1997-98 and 1999-00 compared to their urban cohort. This rural/urban gap averaged just under 3% between 1997-98 and 1999-00, and has been narrowing slightly over the three-year period.[19]

Similarly, Alberta Education data indicate that the on-time plus two years completion rate is slightly higher for rural students than urban students. Between 1995-96 and 1997-98 the Grade 10 rural entry cohort consistently had a higher on-time plus two years high school completion rate than that of the Grade 10 urban entry cohort. The rural/urban gap averaged 1.5% between 1995-96 and 1997-98. However, in contrast to the decreasing gap for on-time completion, the gap between rural and urban on-time plus two years completions has increased consistently over the three-year period.

On-time Plus 2 Years High School Completion by Rural/Urban Status, 1995-96 to 1997-98



2.3.3 *Aboriginal Completion*

Increasing Aboriginal educational attainment is an important policy focus for all levels of government. Within Alberta, the provincial government released an Aboriginal policy framework in Fall 2000. Contained within the framework was the principle to improve the success of Aboriginals in Alberta's education system, with an associated commitment to increase Aboriginal high school and advanced education completion rates.[20]

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[19] Alberta Education, Information and Strategic Services Division.

[20] Government of Alberta, *Strengthening Relationships: The Government of Alberta's Aboriginal Policy Framework*, 2000, p. 2.

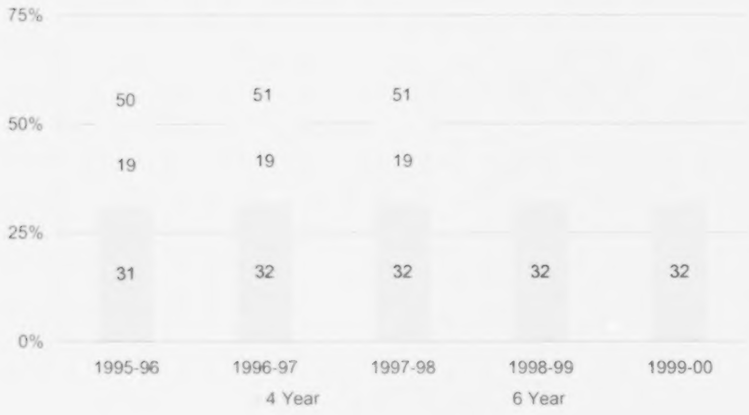
Alberta Education and Alberta Advanced Education have also developed a policy framework to address education-related issues for First Nations, Métis and Inuit peoples and communities. Among others, the framework identifies the long-term expected outcome of improving First Nations, Métis and Inuit learner success in early childhood services to Grade 12 education, as well as improving success in advanced education.[21]

The need to improve the educational attainment of Canada's Aboriginal population is evident. Based on 2001 census data, 48% of Alberta Aboriginals age 15 plus have less than a high school education compared to 30% for the non-Aboriginal population.[22] Although the educational attainment of Alberta Aboriginals improved from the 1996 census, significant work remains in order to increase Aboriginal high school completion, and in turn increase both attendance and completion of advanced education studies.

2.4 Transition to Advanced Education Studies

Using the same Grade 10 entry cohort developed for Alberta Education's high school completion rate measure, Alberta Education and Alberta Advanced Education have developed a measure that tracks the cohort for four and six years beyond Grade 10 to identify transitions into the advanced education system (both post-secondary and apprenticeship).

4 and 6 year High School to Advanced Education Transition Rates, 1995-96 to 1999-00



Based on five years of available data, Alberta's high school to advanced education transition rate has remained relatively constant from 1995-96 to 1999-00. There was a slight (1%) increase in the four-year transition rate over this time period, and no change in the proportion of the cohort entering advanced education studies in years five and six

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[21] Alberta Learning, *First Nations, Métis and Inuit Education Policy Framework*, February 2002, p. 5.
[22] Statistics Canada, special tabulation for Alberta Advanced Education.

(constant at 19%). Overall, 51% of Alberta's Grade 10 entry cohort transitions to advanced education studies within six years (note that six year rates are not yet available for the 1998-99 and 1999-00 cohorts).[23]

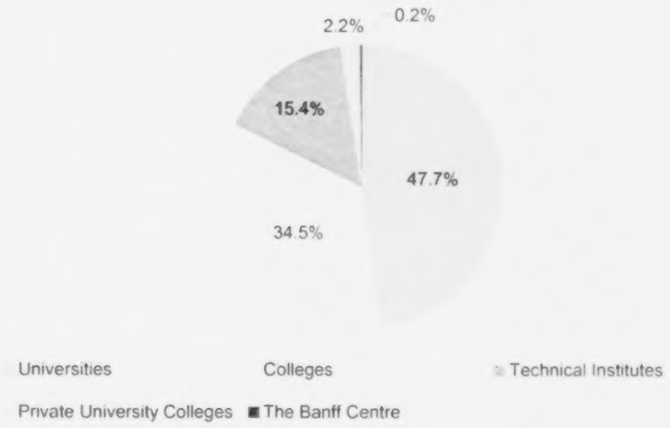
2.5 Credit Enrolment in Alberta

The following sections provide an overview of enrolment patterns in credit programs at Alberta's publicly funded post-secondary institutions. Credit programs are the core focus of the advanced education system – providing students with the skills and abilities required for success in the global, knowledge-based economy as well as the knowledge necessary to become responsible and engaged citizens.

2.5.1 Enrolment by Sector

By 2002-03 Full Load Equivalent (FLE) enrolment at Alberta's publicly funded post-secondary institutions was evenly split between the college/technical institute sectors (34.5% and 15.4% of total enrolments respectively) and the university/private university college sectors (47.7% and 2.2% of total enrolments respectively). The Banff Centre had a small proportion (0.2%) of total FLE enrolment in 2002-03. These proportions have been consistent since 1997-98, although proportional enrolments in the university and college sectors have increased slightly at the expense of the technical institute sector (Table 1, Appendix C).

FLE Enrolment by Sector, 2002-03



Alberta has experienced substantial increases in credit enrolment over the last several years. Between 1997-98 and 2002-03 credit enrolment at Alberta's publicly funded post-secondary institutions grew from 111,011 to 135,640 FLE's – an increase of 22.2%. At

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[23] Alberta Learning. *Annual Report 2003/2004*. 2004 p. 34.

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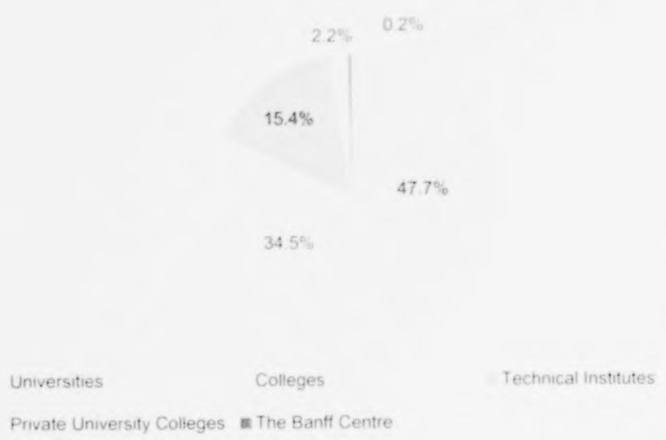

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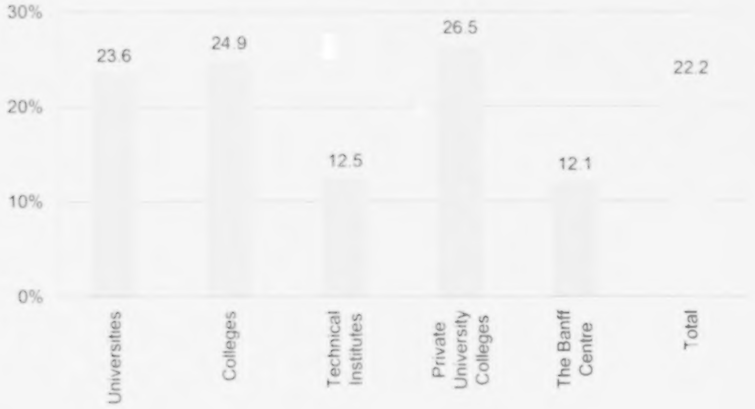
[23] Alberta Learning, *Annual Report 2003/2004*, 2004 p. 34.

26.5%, Alberta's private university college sector showed the highest level of enrolment growth followed by colleges (24.9%), universities (23.6%), and technical institutes (12.5%). The Banff Centre had an enrolment increase of 12.1% over the same time period.[24]

Percent Change in FLE Enrolment by Sector, 1997-98 to 2002-03



2.5.2 *Enrolment by Region*

By 2002-03, a significant proportion of total FLE enrolments were at institutions in Edmonton (41.7%) and Calgary (34.2%). Advanced education institutions in regional centers (Lethbridge, Medicine Hat, Red Deer, Grande Prairie and Fort McMurray) comprised 14.5% of total FLE enrolments while 5.8% were at institutions outside these larger centers. Distance delivery enrolments at Athabasca University comprised the remaining 3.8% of total FLE enrolments.[25]

Interestingly, there was very little difference in enrolment increases among Alberta regions between 1997-98 and 2002-03. Enrolment increases at institutions in Edmonton, Calgary, the regional centers (Lethbridge, Medicine Hat, Red Deer, Grande Prairie and Fort McMurray), and institutions outside of the larger centers were consistent, ranging from a low of 19.3% for institutions in the regional centers to a high of 21.6% for Edmonton institutions (Table 2, Appendix C). Over the same period, Athabasca University's enrolment increase was 87.8% - strong evidence of the increasing demand for distance delivery learning opportunities.

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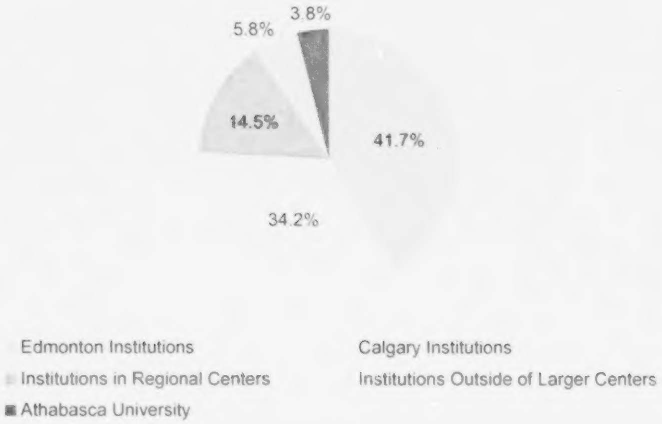
[24] Alberta Advanced Education, Learner Enrolment Reporting System.

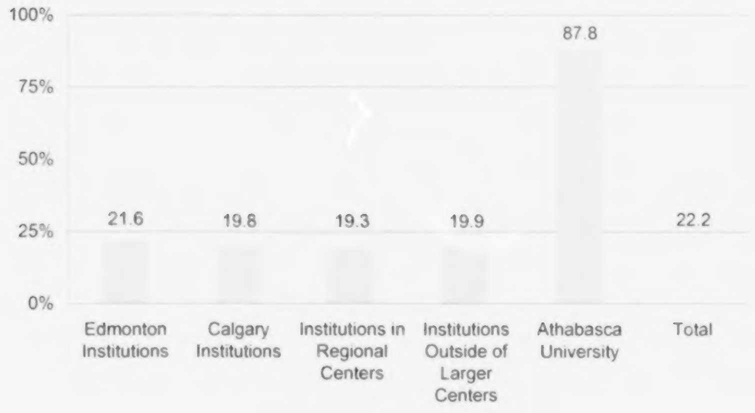
[25] Alberta Advanced Education, Learner Enrolment Reporting System.

FLE Enrolment by Region, 2002-03



It is important to note that Athabasca University has been highly successful at increasing out-of-province enrolments. Based on 2002-03 headcount data, Alberta residents comprised 47.2% of full-time enrolments at Athabasca University while other Canadians comprised 47.5% (with the remainder either international students or unknown). For part-time studies, Alberta residents comprised 39.9% of enrolments (headcount basis) while other Canadians comprised 55.2% (with the remainder either international students or unknown).[26]

Percent Change in FLE Enrolment by Region, 1997-98 to 2002-03



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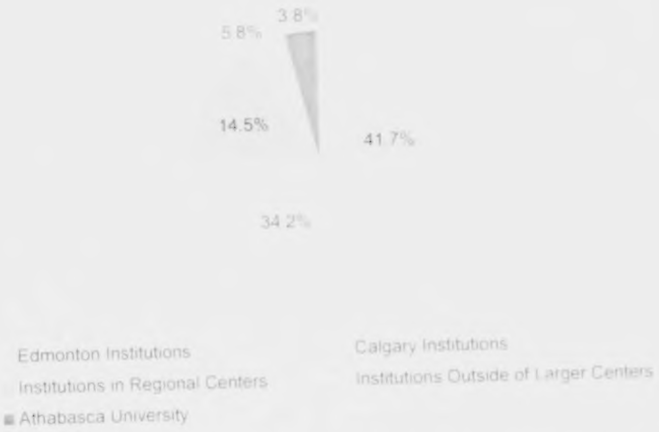
[26] Alberta Advanced Education, Learner Enrolment Reporting System.

FLE Enrolment by Region, 2002-03



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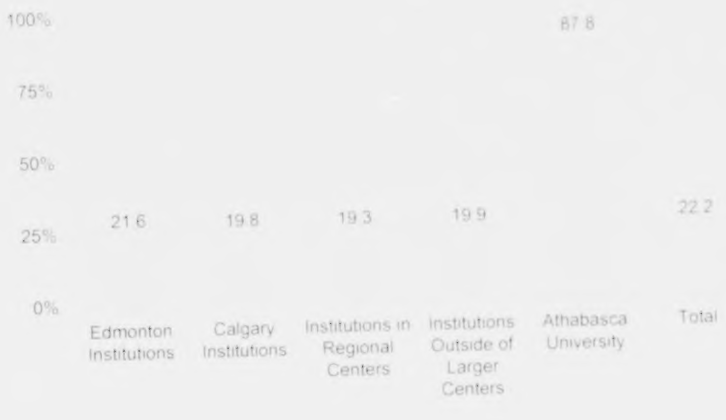
Percent Change in FLE Enrolment by Region, 1997-98 to 2002-03



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[26] Alberta Advanced Education, Learner Enrolment Reporting System.

2.5.3 Enrolment by Program Type

By 2002-03, 55.5% of total FLE enrolments at Alberta's publicly funded post-secondary institutions were in degree programs (university transfer, applied, bachelor's, master's and PhD), 25.5% were in career programs (apprenticeship, trade certificate, certificate, diploma and post-diploma), while the remaining 19.0% were in other programs (skill training, preparatory and basic upgrading, and general studies).

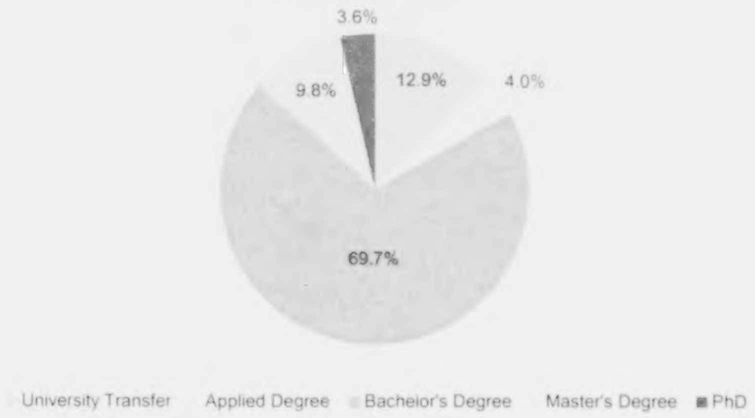
FLE Enrolments by Program Type, 2002-03

	FLE Enrolments	%
Degree Programs	75,135.4	55.5
Career Programs	34,532.4	25.5
Other Programs	25,647.9	19.0
Total	**135,315.7**	**100.0**

Note: Total FLE's do not include the Banff Centre.

Within the degree program type the large majority of FLE enrolments in 2002-03 were in bachelor's programs (69.7%), followed by university transfer (12.9%), master's (9.8%), applied degree (4.0%) and earned doctorate (3.6%).[27]

FLE Enrolment by Program Type, Degree Programs, 2002-03



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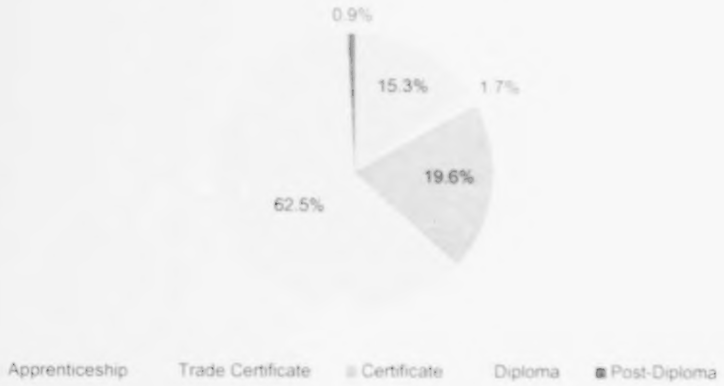
[27] Alberta Advanced Education, Learner Enrolment Reporting System.

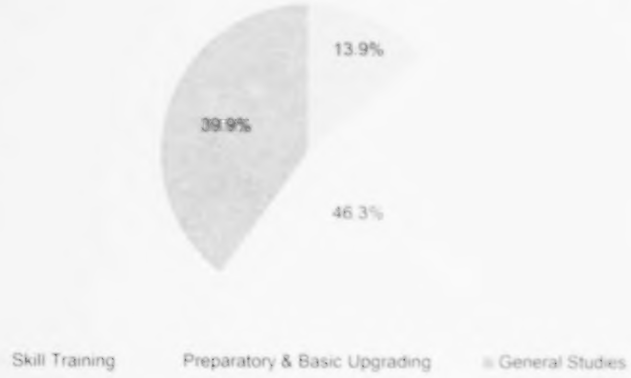
Within the career program type (25.5% of total FLE enrolments) the majority of FLE enrolments in 2002-03 were in diploma programs (62.5%), followed by certificate (19.6%) and apprenticeship programs (15.3%). There were much smaller enrolments in trade certificate programs (1.7%) and post-diploma programs (0.9%).

FLE Enrolment by Program Type,
Career Programs, 2002-03



Within the other program type (19.0% of total FLE enrolments) the majority of FLE enrolments in 2002-03 were in preparatory and basic upgrading programs (46.3%), followed by general studies (39.9%) and skill training programs (13.9%).[28]

FLE Enrolment by Program Type,
Other Programs, 2002-03



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[28] Alberta Advanced Education, Learner Enrolment Reporting System.

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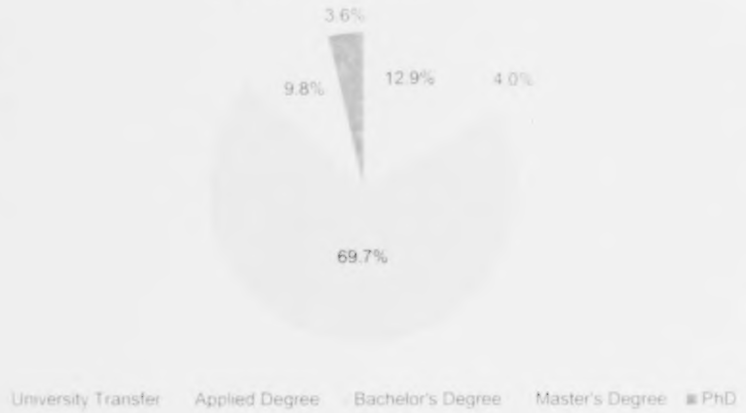
FLE Enrolment by Program Type, Degree Programs, 2002-03



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[57] Alberta Advanced Education, Learner Enrolment Reporting System.

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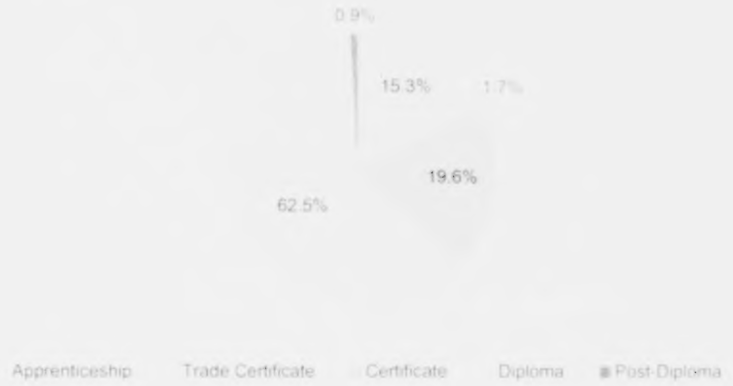
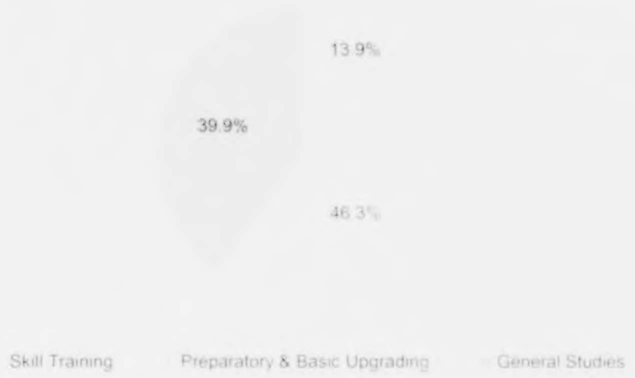
FLE Enrolment by Program Type, Career Programs, 2002-03



Within the other program type (19.0% of total FLE enrolments) the majority of FLE enrolments in 2002-03 were in preparatory and basic upgrading programs (46.3%), followed by general studies (39.9%) and skill training programs (13.9%).[28]

FLE Enrolment by Program Type, Other Programs, 2002-03



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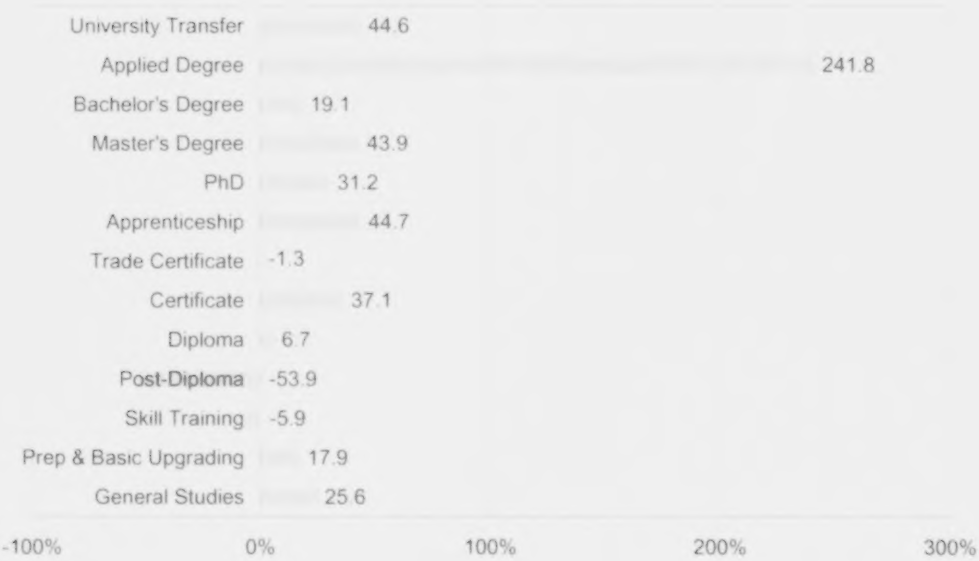
[28] Alberta Advanced Education, Learner Enrolment Reporting System.

Similar to the variable enrolment trends observed by sector, certain program types had larger enrolment increases than others between 1997-98 and 2002-03. Within the degree program type, all five programs had strong enrolment growth particularly applied degree enrolments, which grew 241.8% between 1997-98 and 2002-03. University transfer and master's programs also had strong enrolment growth at 44.6% and 43.9% respectively.

Percent Change in FLE Enrolment by Program Type, 1997-98 to 2002-03



Within the career program type, enrolment trends between 1997-98 and 2002-03 were mixed. Apprenticeship and certificate programs had strong enrolment growth at 44.7% and 37.1% respectively, while post-diploma and trade certificate programs registered enrolment decreases. Enrolment trends for the other program type were also mixed – skill training programs had an enrolment decrease between 1997-98 and 2002-03 of 5.9%, while preparatory and basic upgrading and general studies programs had relatively strong enrolment growth of 17.9% and 25.6% respectively.[29]

The higher enrolment growth in degree programs is important considering Human Resources and Skills Development Canada expects that 25% of all new jobs will require completion of a university degree.[30] The 43.9% increase in master's enrolments is also encouraging – these students may continue into earned doctorate programs and allow for replacement of faculty (higher faculty retirements are expected in Alberta and across Canada over the next decade).[31]

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[29] Alberta Advanced Education, Learner Enrolment Reporting System.

[30] Human Resources Development Canada, *Job Futures (2000) World of Work: Overviews and Trends*, 2002, p. 8.

2.5.4 *Enrolment by Gender and Sector*

Throughout the past several decades, jurisdictions within Canada placed a strong policy focus on increasing female enrolments in advanced education studies in an effort to reduce the educational attainment gap between genders.

For most program areas and jurisdictions these policies have been highly successful. By 1979-80 females comprised the majority of university undergraduate enrolments (full and part-time) in Canada[32] – reaching a high of 59% in 2001-02.[33] For university graduate programs (both master's and earned doctorate) females had also comprised the majority of enrolments within Canada by 1997-98.

Across Canada females now comprise the majority of enrolments in all university program areas (undergraduate and graduate combined) with the exception of architecture/engineering/related technologies, mathematics/computer/information sciences, and personal/protective/transportation services. However, with the exception of mathematics/computer/information sciences, enrolment growth of females in these programs has exceeded that of males.[34]

FLE Enrolment by Gender, as a Percentage of Total Enrolment, 1997-98 to 2002-03

	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03
Female	54.1	54.1	54.4	54.9	55.0	55.1
Male	45.9	45.9	45.6	45.1	45.0	44.9

For the most part, Alberta's enrolment trends by gender have mirrored Canadian trends. Between 1997-98 and 2002-03, the proportion of females enrolled in Alberta's publicly funded post-secondary institutions consistently exceeded that of males – reaching a high of 55.1% of total FLE enrolments in 2002-03. Additionally, the proportion of females within Alberta's advanced education system increased consistently each year from 1997-98 through to 2002-03. At a sector level, females comprise the majority of total 2002-03

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[31] Robert J. Giroux, "Looking down the road by the numbers: Challenges to universities in the next 10 years," *Policy Options*, vol. 24, no. 8, September 2003, pp. 10-14.

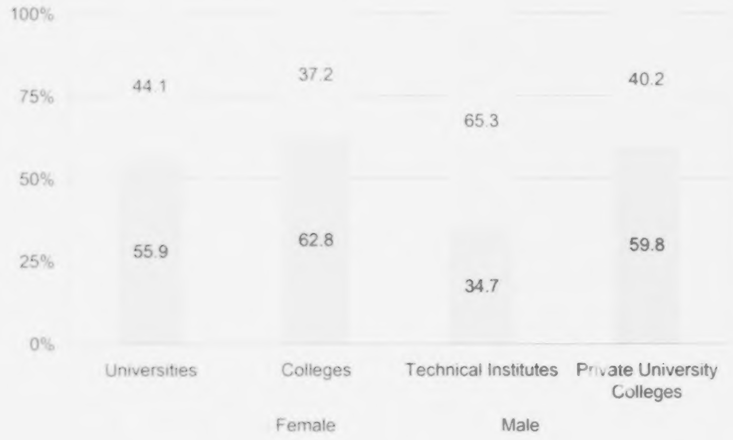
[32] Statistics Canada, *The Daily*, April 17, 2003, Catalogue 11001XIE, p. 6.

[33] Statistics Canada, *The Daily*, July 30, 2004, Catalogue 11001XIE, p. 7.

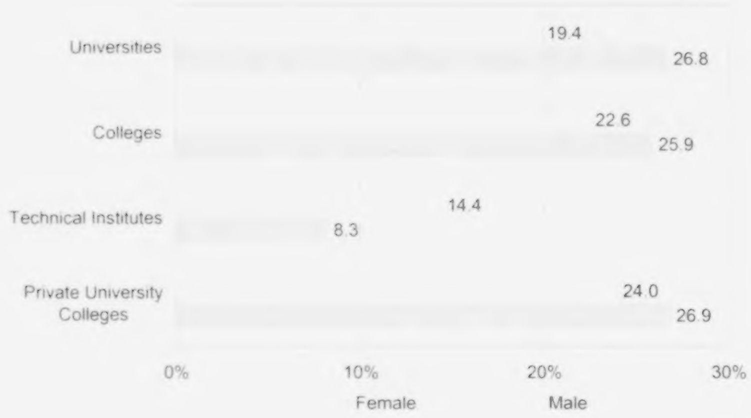
[34] Statistics Canada, *The Daily*, July 30, 2004, Catalogue 11001XIE, p. 8.

FLE enrolments at colleges (62.8%), private university colleges (59.8%) and universities (55.9%). Only within the technical institute sector do males comprise the majority of enrolments (65.3%, versus 34.7% for females).[35]

FLE Enrolment by Gender and Sector, 2002-03



Percent Change in FLE Enrolment by Gender and Sector, 1997-98 to 2002-03



The dominance of female students within the university, college and private university college sectors has been aided by strong female enrolment growth between 1997-98 and 2002-03. For these three sectors, female enrolment growth outpaced that of males, with the gap between male and female enrolment growth most pronounced for the university sector (26.8% growth for females versus 19.4% growth for males). In contrast, within the technical institute sector male enrolment growth of 14.4% between 1997-98 and 2002-03 outpaced female enrolment growth of 8.3% over the same period.[36]

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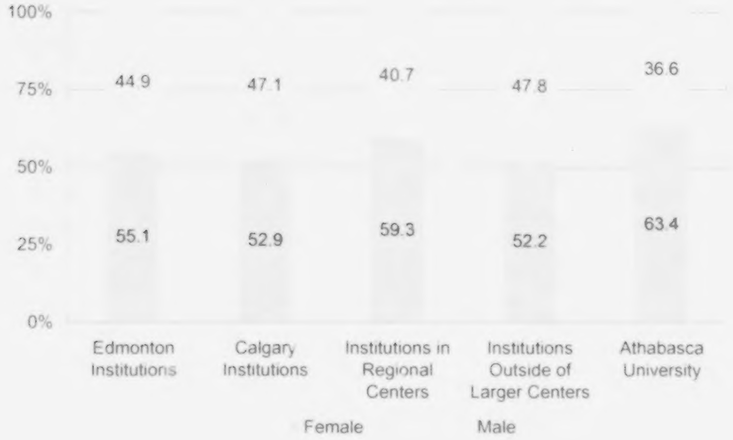
[35] Alberta Advanced Education, Learner Enrolment Reporting System.

2.5.5 *Enrolment by Gender and Region*

Not surprisingly, females comprised the majority of total 2002-03 FLE enrolments across all regions of Alberta. The gender imbalance was most pronounced for Athabasca University where 63.4% of total enrolments were female, followed by institutions in regional centers (Lethbridge, Medicine Hat, Red Deer, Grande Prairie and Fort McMurray) where 59.3% of total enrolments were female.

Interestingly, institutions outside of the larger centers had the greatest gender balance, with female and male enrolments comprising 52.2% and 47.8% of total 2002-03 FLE enrolments respectively. However, a sub analysis by institution and program type indicates that females outnumbered males for many programs – but these female enrolments are balanced by substantial enrolments of males in apprenticeship, trade certificate and skill training programs at Fairview and Lakeland Colleges.

FLE Enrolment by Gender and Region, 2002-03



For most regions, female enrolment growth outpaced male enrolment growth between 1997-98 and 2002-03. At 92.9%, Athabasca University had the most significant increase in female FLE enrolments between 1997-98 and 2002-03, followed by Edmonton institutions at 24.3%. Athabasca University also had the highest level of male FLE enrolment growth at 78.3%, followed by institutions outside of the larger centers at 31.9%.[37]

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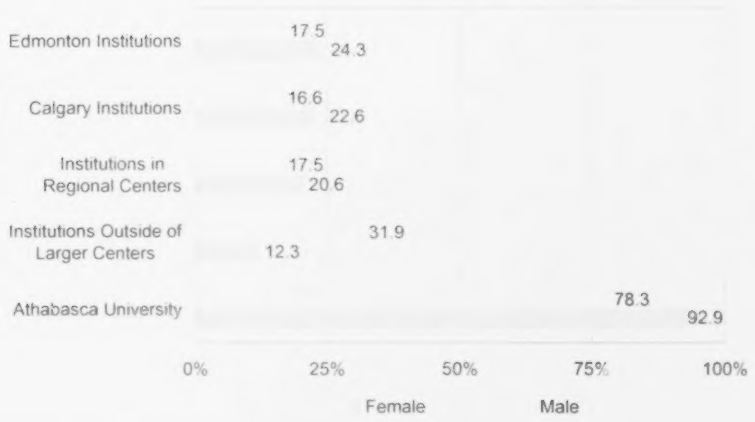
[36] Alberta Advanced Education, Learner Enrolment Reporting System.
[37] Alberta Advanced Education, Learner Enrolment Reporting System.

Percent Change in FLE Enrolment by Gender and Region, 1997-98 to 2002-03

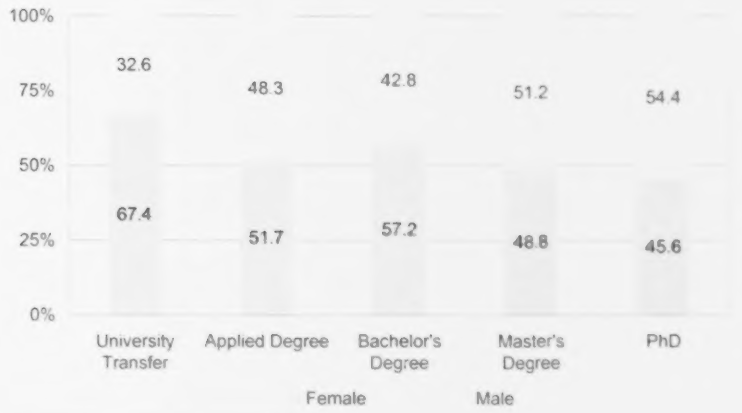


Again, the substantial increase in male FLE enrolments at institutions outside the larger centers was the result of trends at select institutions, most notably Lakeland College (males 76.8% growth, females 29.2% growth) and Portage College (males 32.6% growth, females 7.3% decrease).

2.5.6 *Enrolment by Gender and Program Type*

At the program type level and within degree programs, females outnumbered males for university transfer, applied degree and bachelor's degree programs as a proportion of total 2002-03 FLE enrolments. However, for both master's and earned doctorate programs, males retained a slight majority of 2002-03 FLE enrolments.[38]

FLE Enrolment by Gender and Program Type, Degree Programs, 2002-03



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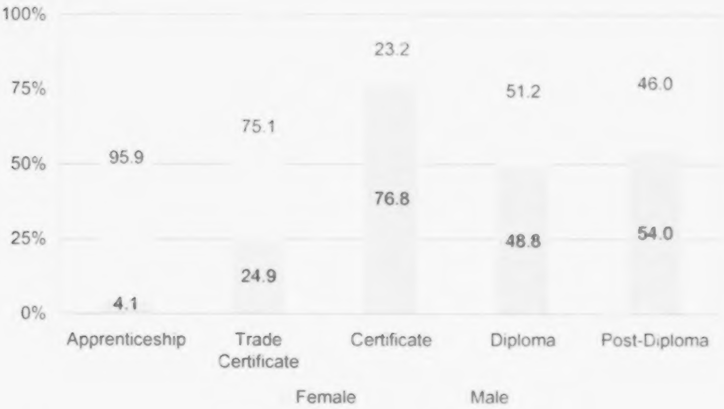
[38] Alberta Advanced Education, Learner Enrolment Reporting System.

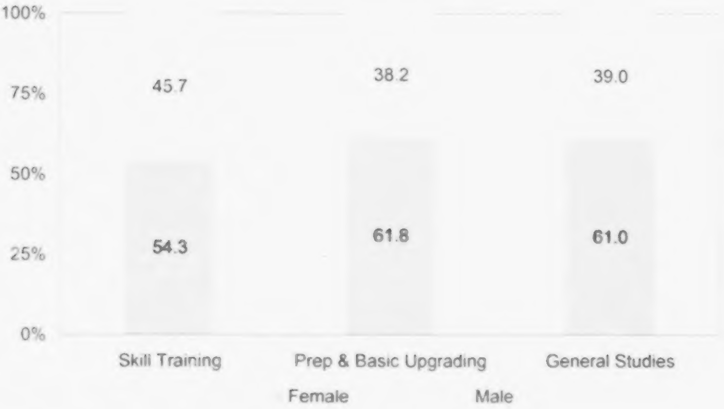
For career programs, there was much greater gender variation than degree programs. Not surprisingly, females comprised a very small proportion of total 2002-03 FLE enrolments in apprenticeship programs (4.1%) and a minority of enrolments in trade certificate programs (24.9%). In contrast, females comprised over three quarters (76.8%) of total 2002-03 FLE enrolments in certificate programs and the majority of enrolments in post-diploma programs (54.0%).[39]

FLE Enrolment by Gender and Program Type, Career Programs, 2002-03



For other programs, females comprised the majority of total 2002-03 FLE enrolments for skill training, preparatory and basic upgrading, and general studies programs.

FLE Enrolment by Gender and Program Type, Other Programs, 2002-03



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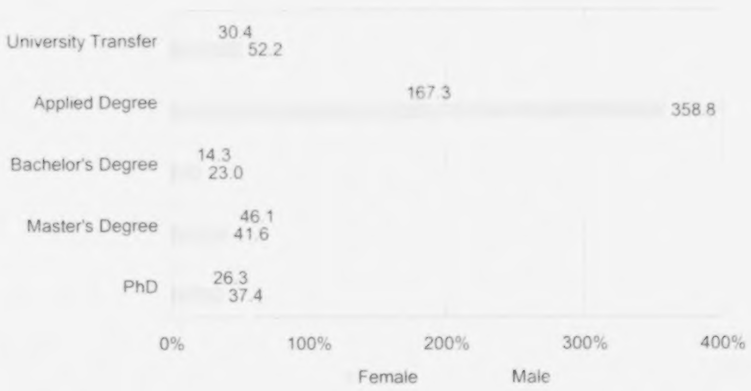
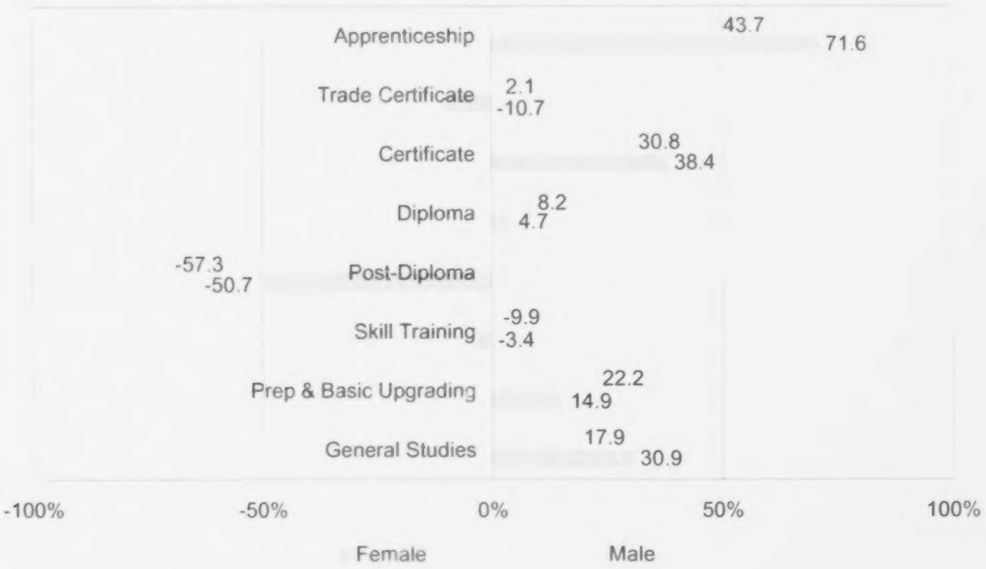
[39] Alberta Advanced Education, Learner Enrolment Reporting System.

Similar to national trends, Alberta's enrolment increases for females have outpaced those of males between 1997-98 and 2002-03. Specifically, female enrolments increased 24.4% while male enrolments increased 19.2% system-wide. An analysis of enrolment by gender and program type indicates that with the exception of master's degrees, female enrolment growth exceeded male enrolment growth for all other degree programs.[40]

Percent Change in FLE Enrolment by Gender and Program Type, Degree Programs, 1997-98 to 2002-03



Percent Change in FLE Enrolment by Gender and Program Type, Career & Other Programs, 1997-98 to 2002-03



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[40] Alberta Advanced Education, Learner Enrolment Reporting System.

Unlike degree programs, where both genders registered enrolment increases between 1997-98 and 2002-03, career and other program types had more varied trends. Specifically, between 1997-98 and 2002-03 FLE enrolment growth for females outpaced that of males for apprenticeship, certificate, and general studies programs, with the gap in enrolment growth by gender most pronounced for apprenticeship and general studies.

In contrast, over the same time period enrolment growth of males outpaced that of females for trade certificate, diploma and preparatory and basic upgrading programs. Between 1997-98 and 2002-03 there were enrolment declines for both genders in skill training programs.

2.5.7 Aboriginal Enrolments

The number of Aboriginals enrolled in Alberta's advanced education system remains difficult to determine because information on ethnicity/ancestry has not consistently been collected. A pilot project with Statistics Canada is starting to collect educational attainment data through the Labour Force Survey.

Additionally, Alberta Education is working on an initiative to allow for self-identification of Aboriginals within the basic learning system. As these students move through the basic learning system into the advanced education system, a greater understanding of Aboriginal enrolment levels will be developed. Alberta Advanced Education is also working with advanced education institutions to include an Aboriginal ancestry question on application forms.

2.6 Credit Enrolment across Canada

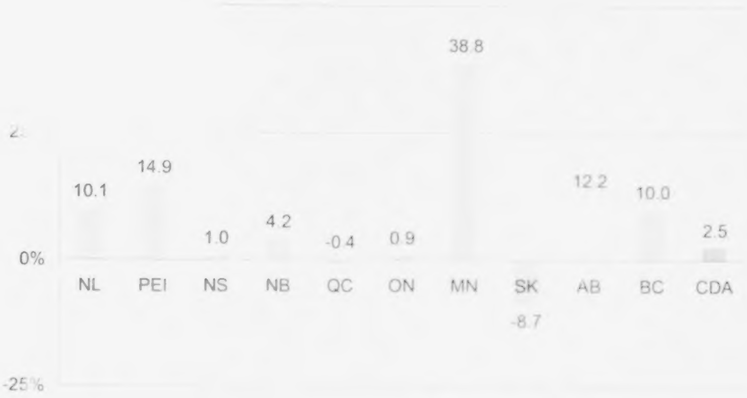
The following sections provide context on credit enrolment changes within Alberta by reviewing credit enrolment changes in jurisdictions across Canada. Note that the data used for these sections are drawn from Statistics Canada sources – as a result, the Statistics Canada data for Alberta may be slightly inconsistent with the data discussed earlier that was obtained from Alberta Advanced Education's Learner Enrolment Reporting System.

2.6.1 College Enrolment

Colleges are a critical component within Canada's advanced education system. They deliver a wide range of shorter-term programs (generally one to two years in length) with a strong vocation focus, often in regions that do not have the population base to support a full-service campus-based university. A recent Statistics Canada analysis confirmed the importance of colleges in ensuring rural access. Although rural students are less likely to take university level studies compared to their urban counterparts, they participate at the college level to a much higher degree – so much so that the total participation rates (college and university combined) of urban and rural students are almost equivalent.[41]

Between 1997-98 and 1999-00 (most current year available), full-time college enrolment in Canada grew from 398,643 to 408,781 – an increase of 2.5% (Table 3, Appendix C). At 12.2%, Alberta's increase was well above the Canadian average and third highest after Manitoba (38.8%) and Prince Edward Island (14.9%). Although Manitoba and Prince Edward Island had larger enrolment increases on a percentage basis, Alberta's enrolment growth of 3,622 students was the highest of all provinces, even surpassing Ontario and British Columbia, which have larger college systems.

Percent Change in Full-time College Enrolment by Province, 1997-98 to 1999-00



Unlike full-time enrolment, Canada's part-time college enrolment decreased 6.7% between 1997-98 and 1999-00. Of those provinces with significant part-time college enrolments (greater than 1,000 students), Alberta had the most significant decrease at 21.4% followed by Québec at 13.9% and Manitoba at 6.2% (Table 4, Appendix C). At 8.8%, Ontario was the only province with part-time college enrolments greater than 1,000 to register an increase.[42]

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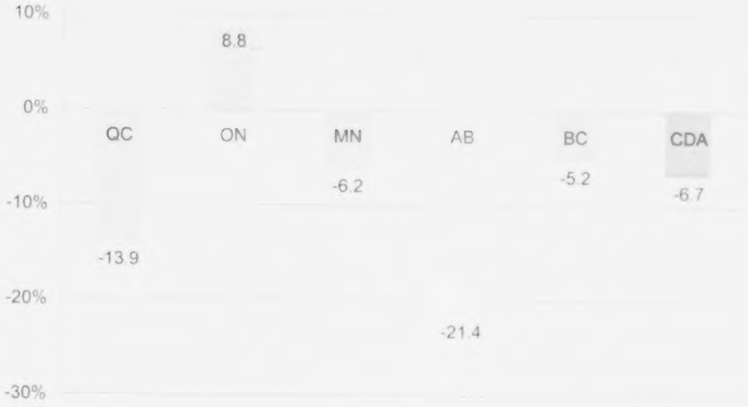
[41] Statistics Canada. *Access to College and University: Does Distance Matter*, 2003, Catalogue 11F0019MIE no. 201, p. 8.

[42] Statistics Canada. *Education in Canada, 2000*, 2001, Catalogue 81229XPB, pp. 52-53; Statistics Canada and the Council of Minister's of Education, Canada, *Education Indicators in Canada: Report of the Pan-Canadian Education Indicators Program 2003*, 2003, Catalogue 81582XPE, p. 349.

Percent Change in Part-time College Enrolment by Province, 1997-98 to 1999-00



Alberta's 21.4% decrease in part-time college enrolments was the result of 3,500 fewer students enrolling in part-time studies between 1997-98 and 1999-00. The increase in full-time college enrolments over the same time period was 3,622 students. Thus, on a headcount basis (both full-time and part-time), the total number of students in Alberta's college system remained relatively stable between 1997-98 and 1999-00. Additionally, more current Alberta Advanced Education enrolment data indicate that part-time college and technical institute enrolments (headcount rather than FLE basis) have recovered, registering an increase between 1997-98 and 2002-03.

2.6.2 University Undergraduate Enrolment

University undergraduate students comprise the largest proportion of total advanced education credit enrolment in most jurisdictions across Canada. These programs can lead to direct entry into the workforce or further education in programs that include graduate studies (master's and earned doctorate programs), law and medicine.

Between 1997-98 and 2001-02 (most current year available), full-time university undergraduate enrolment in Canada grew from 633,015 to 687,510 students – an increase of 8.6% (Table 5, Appendix C). Alberta's enrolment increase of 19.0% was the most significant in the country – 8% greater than the next highest province, New Brunswick, at 11.0%.[43]

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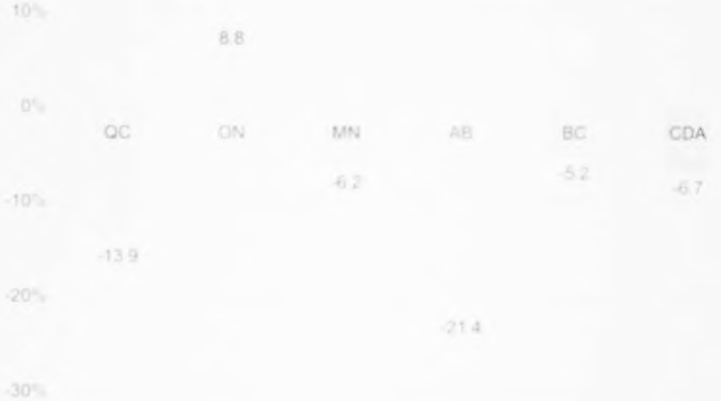
[43] Statistics Canada, *CANSIM*, Table 477-0011.

Percent Change in Part-time College Enrolment by Province, 1997-98 to 1999-00



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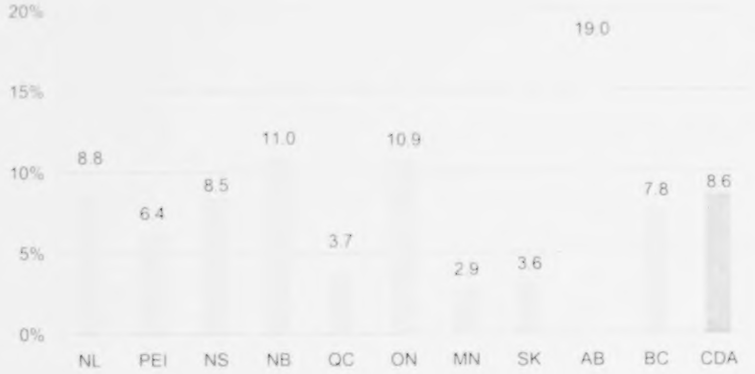
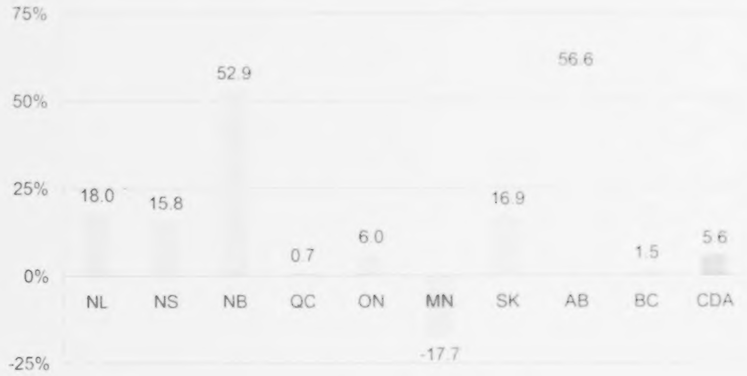
[43] Statistics Canada, *CANSIM*, Table 477-0011.

Percent Change in Full-time University Undergraduate Enrolment by Province, 1997-98 to 2001-02



Similar to trends for full-time university undergraduate enrolments, Alberta's 56.6% increase in part-time enrolments was the highest in Canada between 1997-98 and 2001-02 and well above the national average increase of 5.6% (Table 6, Appendix C).[44]

Percent Change in Part-time University Undergraduate Enrolment by Province, 1997-98 to 2001-02



Note that Prince Edward Island is not included in the above graph (and subsequent graphs on graduate enrolments) due to the low numbers of students in these categories.

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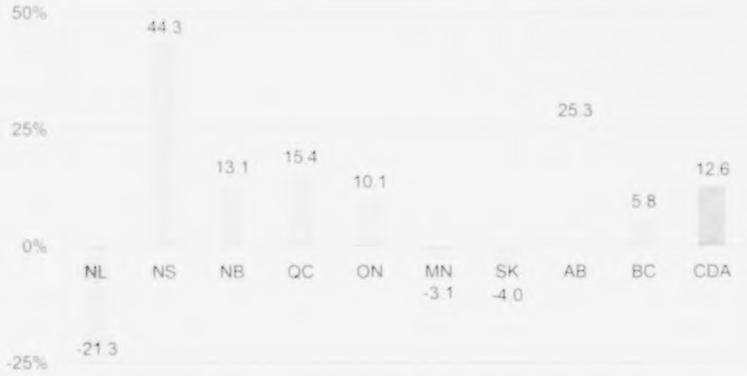
[44] Statistics Canada, *CANSIM*, Table 477-0011.

2.6.3 University Graduate Enrolment

Graduate programs play an important role in both Canada and Alberta's ability to participate in a global, knowledge-based economy. Master's and PhD students often engage in research and development, contributing to both knowledge and wealth creation. Additionally, master's and PhD graduates also serve as the next generation of post-secondary educators and researchers – a critical consideration given the shortfall of faculty predicted across Canada and many other Western countries.

Percent Change in Full-time University Graduate Enrolment by Province, 1997-98 to 2001-02



Between 1997-98 and 2001-02, Canada's full-time graduate enrolment increased from 112,690 to 126,890 – an increase of 12.6% (Table 7, Appendix C). Over the same time period, Alberta's graduate enrolment increased 25.3% - the second highest increase in the country after Nova Scotia at 44.3%.[45]

Similar to inter-provincial trends for full-time graduate enrolments, Alberta's 36.9% increase in part-time graduate enrolment between 1997-98 and 2001-02 was the second highest in Canada after Nova Scotia (66.7% increase). Nationally, there was a 12.9% increase in part-time university graduate enrolment – with Saskatchewan, Newfoundland and Labrador, and Manitoba registering enrolment decreases over this period (Table 8, Appendix C).[46]

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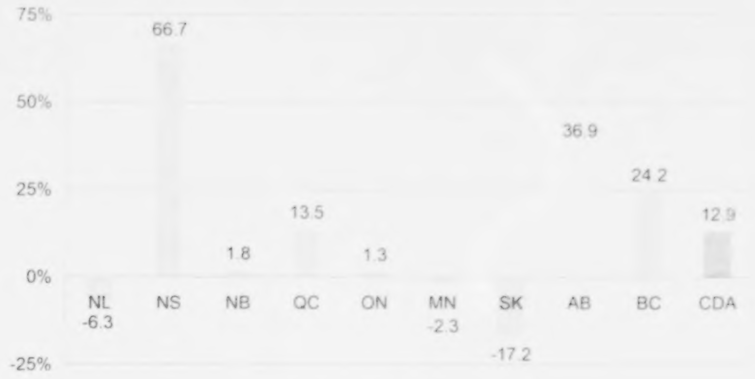
[45] Statistics Canada, *CANSIM*, Table 477-0011.

[46] Statistics Canada, *Education in Canada, 2000*, 2001, Catalogue 81229XPB, pp. 58-59; Statistics Canada, special tabulation for Alberta Advanced Education.

Percent Change in Part-time University Graduate Enrolment by Province, 1997-98 to 2001-02



2.7 Advanced Education Participation Rates across Canada

As discussed above, Alberta's credit enrolment increases have been among the highest in Canada, particularly for full-time students. These enrolment increases are due in part to the increasing population of the 18 to 24 age cohort (often a strong predictor of enrolment trends),[47] but are also influenced by a variety of personal factors including academic achievement in high school, perceived need to take advanced education studies, parental influence, perceived and actual cost of advanced education studies, labour market strength, as well as the individual's socioeconomic background.[48,49] Participation rates measure enrolment levels relative to the population of a particular age cohort, and over an extended period of time will reflect the relative level of importance a population places on obtaining an advanced education.

Based on Statistics Canada's Labour Force Survey data, and using the 18 to 24 age cohort, Alberta's college participation rate was 15.1% in 2004, somewhat below the national average of 15.5% but the third highest rate after Québec and British Columbia (Table 9, Appendix C).[50] Note that all Québec advanced education students are required to take their first two years of studies at the college level. This feature of the Québec system inflates the national average – making it less meaningful to compare Alberta college participation rates with rates for either Québec or Canada.

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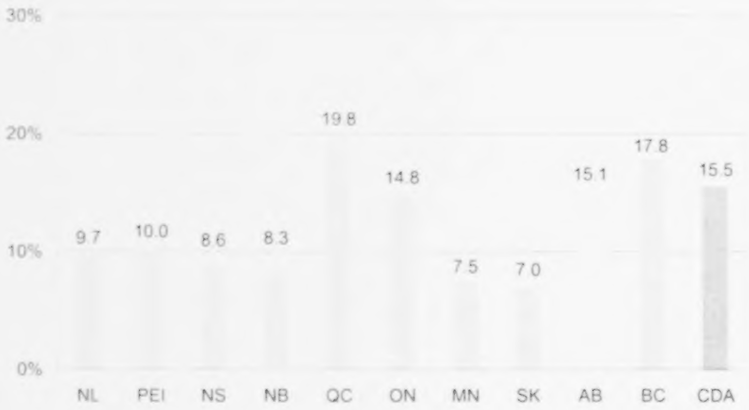
[47] Robert J. Giroux, "Looking down the road by the numbers: Challenges to universities in the next 10 years," *Policy Options*, vol. 24, no. 8, September 2003, pp. 10-14.

[48] Alberta Learning, *Post-Secondary Accessibility Study*, 2001, p. 3.

[49] Statistics Canada, *Who goes to post-secondary education and when: Pathways chosen by 20 year-olds*, 2003, Catalogue 81595MIE no. 006, p. 6.

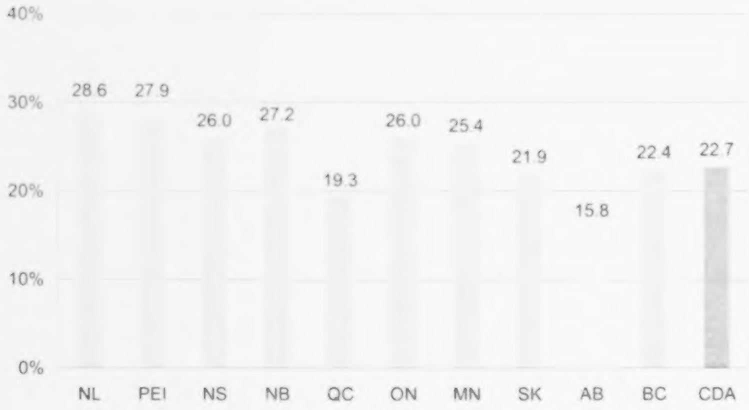
[50] Statistics Canada, special tabulation for Alberta Advanced Education.

College Participation Rates by Province, 2004



At the university level, Alberta's university participation rate was 15.8% in 2004. This rate was the lowest in Canada and well below the national average of 22.7%. At 28.6% Newfoundland and Labrador had the highest university participation rate in Canada. Note that elimination of Grade 13 in Ontario has substantially increased its university participation rate (as well as the national average) for 2004.[51]

University Participation Rates by Province, 2004



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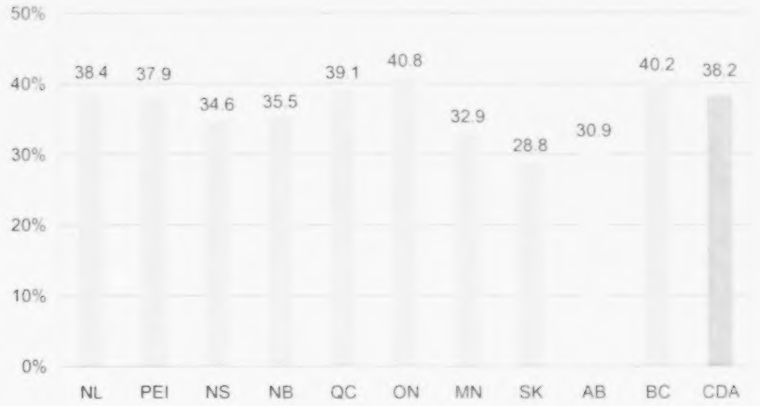
[51] Statistics Canada, special tabulation for Alberta Advanced Education.

Overall, Alberta's total advanced education participation rate (college and university enrolments combined) was 30.9% in 2004, below the national average of 38.2% and the second lowest rate after Saskatchewan (28.8%). Ontario and British Columbia had the highest and second highest total advanced education participation rates at 40.8% and 40.2% respectively.[52]

Total Advanced Education Participation Rates by Province, 2004



Alberta's lower participation rates may be explained by the province's strong economy, with its tendency to draw youth directly into the workforce. However, as mentioned earlier, over the long-term Alberta's future productivity and economic strength will be increasingly reliant on an educated and knowledgeable workforce. Increasing college and university participation rates remains a key challenge for Alberta Advanced Education and stakeholders within Alberta's advanced education system.

2.8 Adult Participation in Job-related Training Across Canada

The notion of lifelong learning is a relatively new concept within Canada and many other jurisdictions. In earlier decades individuals could make the transition from education to work and reasonably expect to remain employed in the same occupation through the full duration of their working years. When labour markets softened and the unemployment rate increased, expectations changed as workers, employers and governments alike recognized the need for education and training to upgrade skills or acquire new knowledge. Adult education and training is now recognized as necessary to ensure individual, organizational and jurisdictional competitiveness and relevancy in the global, knowledge-based economy.[53] Additionally, from a social outcomes perspective, adult education and training can also lead to improved job satisfaction, income equality, and health outcomes.[54]

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[52] Statistics Canada, special tabulation for Alberta Advanced Education.

Although Canada is among the top five countries in terms of total expenditures on post-secondary education and has the highest proportion of its working age population (aged 25 to 64) with a university education[55], the country ranks substantially lower in terms of the amount of education and training taken by the adult, working age population once their formal advanced education career is complete.[56] In an increasingly competitive global, knowledge-based economy, improving the education and skill level of the adult, working age population is seen as a new avenue to enhance productivity, which in turn increases competitiveness and ultimately increases a jurisdiction's standard of living.

Statistics Canada, in concert with Human Resources and Skills Development Canada, regularly surveys Canada's working age population (age 25 to 64) through the *Adult Education Training Survey* (AETS). Results from the most recent survey cycle (2002) indicate that participation rates in job-related training increased across all provinces between 1997 and 2002. Specifically, Manitoba had the most significant growth in participation – rising from 25.4% in 1997 to 35.3% in 2002 while Alberta had more moderate growth – rising from 28.4% in 1997 to 31.7% in 2002.[57] As of 2002, Manitoba had the highest level of adult participation in job-related training in Canada (at 35.3%) while Alberta had the fourth highest rate at 31.7%.

Results from AETS indicate that just under one-third of Alberta's working age population participated in job-related training in 2002 in order to improve their workplace skills or forge an entirely new career path. As jurisdictions become increasingly competitive and skill level requirements increase, learning beyond formal education will become more important.

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[53] Alberta Learning, *Final Report of the MLA Committee on Lifelong Learning*, 2002, p. 4.

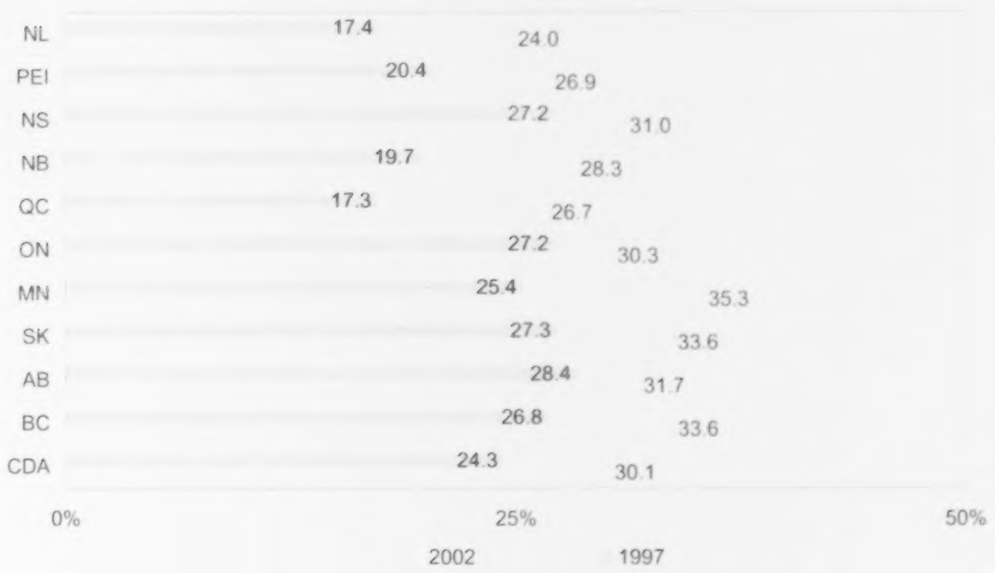
[54] Statistics Canada and Council of Ministers of Education, Canada, *Education Indicators in Canada: Report of the Pan-Canadian Education Indicators Program 2003*, 2003, Catalogue 81582XPE, p. 117.

[55] Organisation for Economic Co-operation and Development, *Education at a Glance: OECD Indicators 2003*, 2003, pp. 53, 197.

[56] Statistics Canada and Human Resources Development Canada, *A report on Adult Education and Training in Canada: Learning a Living*, 2001, Catalogue 81586XIE, p. 5.

[57] Statistics Canada and Human Resources and Skills Development Canada, *Working and training: First results of the 2003 Adult Education and Training Survey*, 2004, Catalogue 81595MIE no. 015, p. 34.

Adult Participation in Job-related Training Activities by Province, 1997 and 2002



2.9 Advanced Education Participation and Socioeconomic Status

In recent years there has been a growing concern regarding the participation of students from lower socioeconomic backgrounds in advanced education. Although the amount of research is not substantial, current studies (and in particular work completed by Statistics Canada) suggest a correlation between advanced education participation and socioeconomic status.[58]

In 1998, through its Survey of Labour and Income Dynamics (SLID), Statistics Canada asked 18 to 21 year olds if they had taken advanced education studies and if so, in which sector (college or university). These results, combined with data on family income, indicate that the participation gap between students from lower income families and those from higher income families varied by sector.

Specifically, there were no measurable differences in college participation between students from the lowest quartile of family income and those from the highest quartile;

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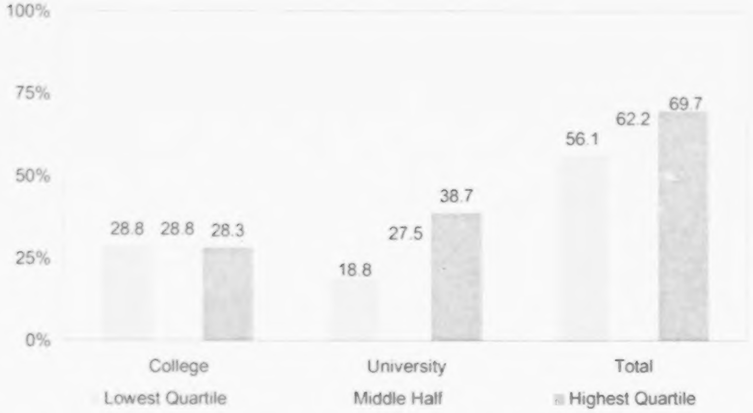
[58] Statistics Canada, *Education Quarterly Review*, 2000, vol. 6, no. 4, Catalogue 81003, pp. 28-29.

however, at 19.9% the gap in university participation was significant. Overall (college and university combined) the advanced education participation gap was 13.6% (56.1% for low income versus 69.7% for high income).[59]

Advanced Education Participation of 18 to 21 Year Olds by Family Income Quartile, 1998



A subsequent study by Statistics Canada, using survey data from 1979 onwards, confirmed the persistence of the university participation gap. However, the study also indicated that the gap narrowed throughout the 1990s as more students from lower income families participated in university studies at the same time as fewer students from higher income families participated. The study found no substantial changes in college participation rates by family income over the same time period.[60]

In late 2003 Statistics Canada released results from a new study, the Postsecondary Education Participation Survey, directed at youth age 18 to 24 (17 to 24 in Québec). Among other areas, the survey collected information on the characteristics of respondents who had enrolled in advanced education studies and the barriers identified by those who had not. Results from the survey generally confirm those from the 1998 SLID analysis in that children from families with lower incomes did not enroll in advanced education studies to the same extent as children from families with higher income. The participation gap between children of families with gross incomes of less than $30,000 and those with gross incomes of $80,000 or higher was 30.1%.[61]

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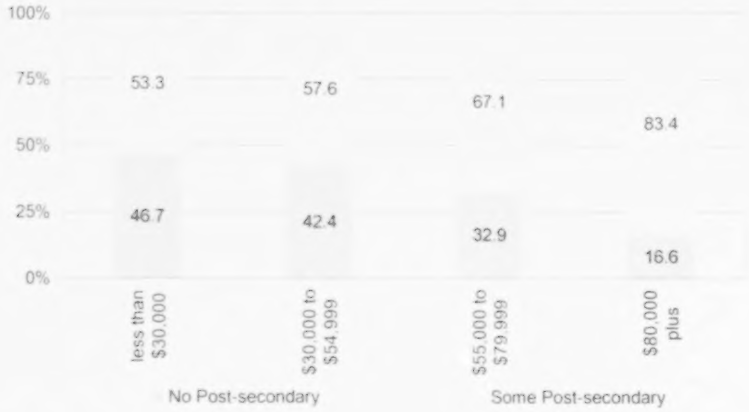
[59] Statistics Canada, *The Daily*, January 9, 2002, p. 2.

[60] Statistics Canada, *Family income and participation in post-secondary education*, 2003, Catalogue 11F0019MIE no. 210, pp. 2, 13-15.

[61] Statistics Canada, *Access, persistence and financing: First results from the Postsecondary Education Participation Survey (PEPS)*, 2003, Catalogue 81595MIE no. 007, p. 18.

Advanced Education Participation of 18 to 24 Year Olds by Family Income, 2002



Studies on advanced education participation and socioeconomic status have been released by other organizations, including an analysis of incoming students at the University of Toronto Faculty of Law and incoming students to medical schools across Canada (excluding Québec).[62] Results from these studies are mixed – the review of incoming law students did not observe any measurable change in socioeconomic status over a four year period although concerns were expressed with the study's methodology.

The analysis completed on medical school students confirmed the known socioeconomic gap in university participation, and also suggested the socioeconomic profile of incoming students had changed over time, with an increasing proportion of students coming from higher income families.[63]

Although results from Statistics Canada research as well as research on Canadian medical schools indicate there is a correlation between university participation and socioeconomic status, it is important to emphasize that the decision to attend advanced education studies is complex, and financial considerations are only one of several influencing factors.

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[62] Shirley Neuman, *Provost's Study of Accessibility and Career Choice in the Faculty of Law*, presented to the Committee on Academic Policy and Programs of the Governing Council of the University of Toronto, February 24, 2003, p. 15.

[63] Irfan A. Dhalla et al. "Characteristics of first-year medical students in Canadian schools", *Canadian Medical Association Journal*, 2002, vol. 166, no. 8, pp. 1029-1035; Jeff C. Kwong et al. "Effects of rising tuition fees on medical school class composition and financial outlook", *Canadian Medical Association Journal*, 2002, vol. 166, no. 8, pp. 1023-1028.

Parental expectations, high school academic achievement, the proximity of various advanced education institutions, academic choices of friends and family, wanting a break from studies and career/academic path uncertainty are all non-financial factors known to affect who goes on to advanced education studies and who does not.

This complexity makes it difficult to determine the extent to which family socioeconomic status influences advanced education participation. Regardless of this complexity, governments, institutions and other advanced education stakeholders must continue to work together to provide the supports necessary to ensure that all individuals can participate in advanced education studies should their interest and ability lead them to do so.

3 QUALITY

Given the substantial societal investment in advanced education, quality outcomes are a critical consideration in any assessment of the success of advanced education systems. This chapter looks at several measures including completion rates, number of credentials awarded, educational attainment, graduate satisfaction and graduate employment. Similar to the previous chapter on accessibility, data is presented by gender, socioeconomic status, urban/rural origin and Aboriginal identity where available in order to provide additional detail in support of key Alberta Advanced Education and Government of Alberta policy initiatives.

3.1 Advanced Education Completion Rates in Alberta

Advanced education completion rates provide an important indication of the relative level of success Alberta's advanced education learners have in meeting their education goals. Higher rates may indicate that learners were well prepared when they entered advanced education studies, selected programs of study that interested and engaged them, and had both the motivation and financial/social support necessary to succeed.

Lower completion rates can be the result of many factors – including lack of preparation and planning, failure to meet the academic standards of the program, incomplete engagement in the program of study, family or financial difficulties requiring discontinuation, as well as alternative and conflicting life opportunities including travel, volunteer work and employment.[64]

Regardless of the factors leading to program discontinuation, lower completion rates are a concern because not all learners are acquiring all learning required for completion of the program. Lower rates result in lower levels of overall societal educational attainment, which can harm a jurisdiction's ability to compete successfully within a global, knowledge-based economy.[65]

3.1.1 Post-secondary Completion

Alberta Advanced Education has developed an interim measure of university and college/technical institute completion rates (for post-secondary students) as part of its annual accountability process. The measure tracks first-year full-time students in certificate, diploma and undergraduate programs for three-years beyond normal program length. Until the Alberta Student Number (ASN) is fully integrated into Alberta's advanced education system, this interim measure will be unable to track university transfer students, or any other student who changes their institution prior to program completion.

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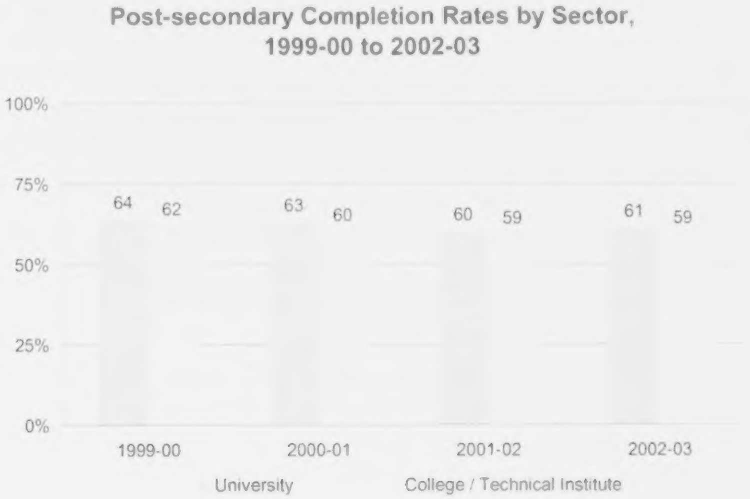
[64] Statistics Canada and Human Resources Development Canada. *Access, persistence and financing: First results from the Postsecondary Education Participation Survey (PEPS)*, 2003, Catalogue 81595MIE no 007, p. 10.

[65] Organisation for Economic Co-operation and Development. *Education at a Glance: OECD Indicators 2002*, 2002, p. 40.



Between 1999-00 (first year that data were available) and 2002-03, the completion rate for Alberta's colleges and technical institutes remained relatively constant, decreasingly slightly from a high of 62% in 1999-00 to 59% by 2002-03. Similarly, in the university sector there has been a slight decreasing trend, with the completion rate dropping from a high of 64% in 1999-00 to 59% by 2002-03.[66]

The gaps in the interim measure make it difficult to know the true extent of non-completion. It is possible that a higher number of students are completing, but doing so at an institution other than the one they originally enrolled in or completing over a much longer time frame. It is anticipated that upon full implementation of the ASN, a revised methodology can be developed that will allow for a more accurate measure of both sector (university, college, technical institute) and system completion rates.

3.1.2 Apprenticeship Completion

Alberta Advanced Education also has an apprenticeship completion rate. This measure tracks second-year apprentices for two years beyond normal program length (most trade programs are four years in length). Data from this measure indicate that apprenticeship completion rates have remained very steady over the last several years, increasing slightly from 75% in 1997-98 to 76% in 2002-03.[67]

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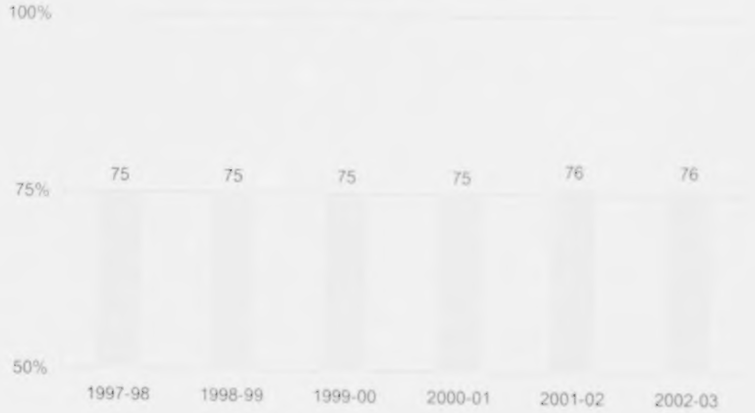
[66] Alberta Learning, *Annual Report 2003/2004*, 2004, p. 31.

Apprenticeship Completion Rates, 1997-98 to 2002-03



Non-completion is a valid and increasingly important issue for Alberta's advanced education system. In an attempt to better understand the reasons behind program non-completion, Alberta Advanced Education has initiated an early leavers study. The objective of this study is to identify the range of factors behind non-completion, and to identify programs and policies that can help improve post-secondary completion rates.

3.2 Credentials Awarded in Alberta

The number of credentials awarded within a jurisdiction provides a measure of the overall level of student success as well as a measure of the jurisdiction's ability to develop and maintain a highly skilled labour force.[68] From an individual perspective, educational attainment (as measured by credentials earned) is often a strong predictor of the level of knowledge, skill and ability that a potential employee can bring to an organization.[69] Given this association between credential and skill level, individuals with advanced educational credentials often have a greater likelihood of securing both stable and higher paying employment.

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[67] Alberta Learning. *Annual Report 2002/2003*. 2003, p. 28; Alberta Learning. *Annual Report 2003/2004*. 2004, p.30.

[68] Organisation for Economic Co-operation and Development. *Education at a Glance: OECD Indicators 2002*. 2002, p. 40.

[69] Statistics Canada and Council of Ministers of Education Canada. *Education Indicators in Canada: Report of the Pan-Canadian Education Indicators Program 2003*. 2003. Catalogue 81582XPE, p. 187.

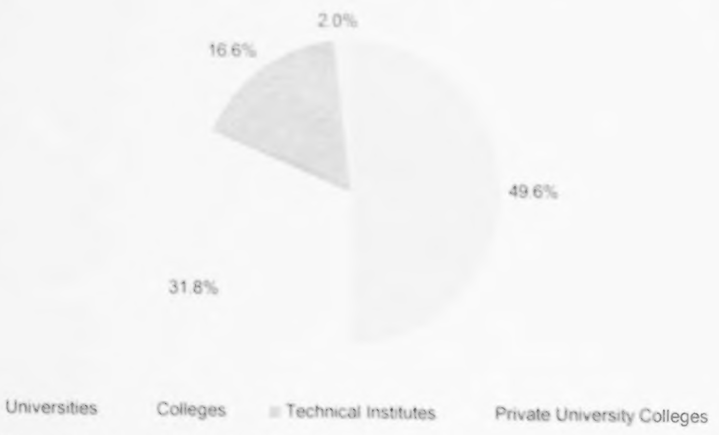
Year-over-year decreases in the number of credentials awarded can be worrisome, particularly if decreases are in program types where enrolments have been increasing or in program types where graduates are in high demand and labour shortages exist. Severe labour shortages can have significant consequences for productivity, which in turn can affect a jurisdiction's competitiveness. Additionally, if shortages are in disciplines such as health and education there may be delayed economic and social consequences in that younger generations, upon reaching adulthood, may have a lowered ability to participate as full and productive members of society.

Alberta's advanced education institutions award a variety of credentials upon successful completion of credit programs including certificates (skill training, apprenticeship and career), diplomas, applied degrees, bachelor's degrees, master's degrees and earned doctorates. Note that the following discussion focuses entirely on credentials awarded in parchment programs. Alberta's advanced education system offers several credit programs that do not result in formal parchments (credentials) including university transfer, general studies and preparatory and basic upgrading program types. Additionally, the Banff Centre for Continuing Education does not award formal parchments, and as such, is not included in discussions on credentials awarded by sector and credentials awarded by region.

3.2.1 Credentials by Sector

By 2002-03 the number of credentials awarded by Alberta's publicly funded post-secondary institutions was relatively evenly split between the college/technical institute sectors (31.8% and 16.6% of total credentials awarded respectively) and the university/private university college sectors (49.6% and 2.0% of total credentials awarded respectively). These proportions have been relatively stable since 1997-98.[70]

Credentials Awarded by Sector, 2002-03



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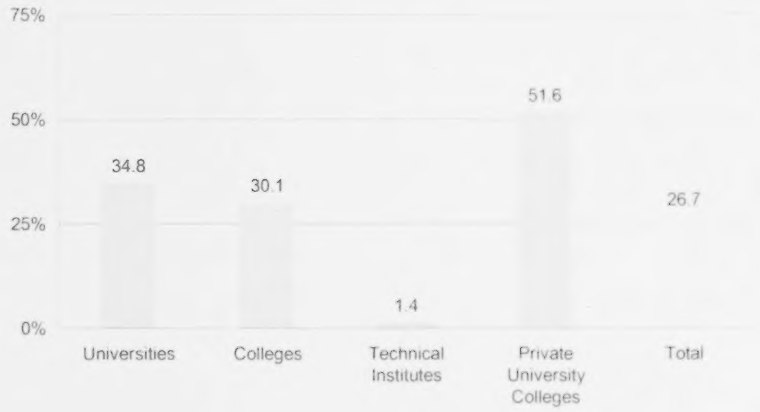
[70] Alberta Advanced Education, Key Performance Indicators Reporting System.

Similar to enrolment increases, Alberta has experienced a substantial increase in the number of credentials awarded by publicly funded post-secondary institutions over the last several years. Between 1997-98 and 2002-03 the total number of credentials awarded grew from 25,117 to 31,899 – an increase of 26.7% (Table 10, Appendix C).

At 51.6%, Alberta's private university college sector showed the highest increase in credentials awarded followed by universities (34.8%), colleges (30.1%), and technical institutes (1.4%). Note that the relatively constant level of credentials awarded within the technical institute sector was the result of a decline of 13.4% at the Southern Alberta Institute of Technology balanced by an increase of 13.9% at the Northern Alberta Institute of Technology.[71]

Percent Change in Credentials Awarded by Sector, 1997-98 to 2002-03



3.2.2 Credentials by Region

By 2002-03, a significant proportion of the total credentials awarded within the system were awarded by institutions in Edmonton (43.9%) and Calgary (33.7%). Advanced education institutions in regional centers (Lethbridge, Medicine Hat, Red Deer, Grande Prairie and Fort McMurray) awarded 13.6% of total credentials while 5.6% were awarded at institutions outside these larger centers (Table 11, Appendix C). The remaining 3.3% of total credentials were awarded by Athabasca University.

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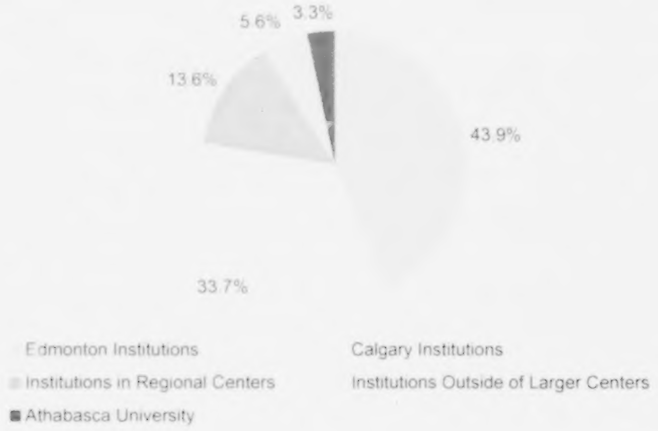
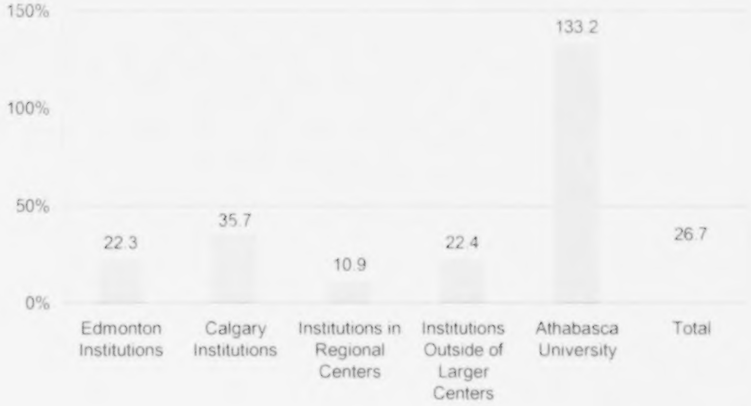
[71] Alberta Advanced Education, Key Performance Indicators Reporting System.



Credentials Awarded by Region, 2002-03

Between 1997-98 and 2002-03 the highest level of growth in the number of credentials awarded occurred at Athabasca University (133.2%). Calgary area institutions had the second highest level of growth in credentials awarded (35.7%) followed by institutions outside of the larger centers and Edmonton area institutions, with growth of 22.4% and 22.3% respectively.[72]



Percent Change in Credentials Awarded by Region, 1997-98 to 2002-03

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[72] Alberta Advanced Education, Key Performance Indicators Reporting System.

At 10.9%, institutions in regional centers (Lethbridge, Medicine Hat, Red Deer, Grande Prairie and Fort McMurray) also registered growth in the number of credentials awarded between 1997-98 and 2002-03. However, this growth was the lowest of the four regions and Athabasca University, and well below the system average of 26.7%.

3.2.3 Credentials by Program Type

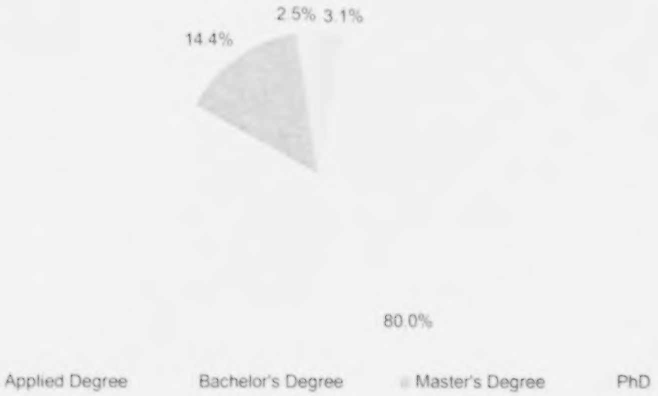
By 2002-03, 53.7% of total credentials awarded at Alberta publicly funded post-secondary institutions were awarded for completion of degree programs (applied, bachelor's master's and PhD), with the remaining 46.3% awarded for completion of career and other program types (skill training, trade certificate, certificate, diploma and post-diploma).

Credentials Awarded by Program Type, 2002-03

	Credentials	%
Degree Programs	17,142	53.7
Career and other Programs	14,757	46.3
Total	**31,899**	**100.0**

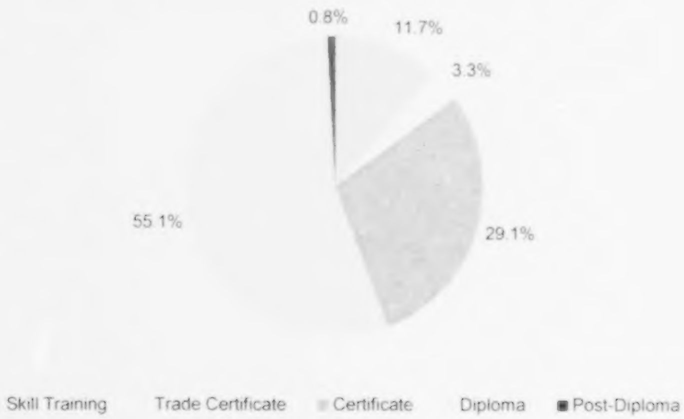
Within the degree program type the vast majority of credentials awarded in 2002-03 were bachelor's degrees (80.0%), followed by master's degrees (14.4%), applied degrees (3.1%), and earned doctorates (2.5%).

Credentials Awarded by Program Type, Degree Programs, 2002-03



Within career and other programs, the majority of credentials awarded in 2002-03 were for completion of diploma programs (55.1%), followed by certificate programs (29.1%), skill training programs (11.7%) and trade certificate programs (3.3%). A small proportion (0.8%) of credentials within career and other programs were awarded for completion of post-diploma studies.[73]

Credentials Awarded by Program Type, Career and Other Programs, 2002-03



Between 1997-98 and 2002-03 the highest level of growth in credentials awarded occurred within the applied degree program type (222.4%). This level of growth was expected given the relatively recent introduction of applied degree programs to Alberta's advanced education system. The number of master's degrees awarded also experienced strong growth between 1997-98 and 2002-03 at 89.3%, followed by certificates (41.2%) and bachelor's degrees (30.9%). There was more moderate growth in the number of diploma, skill training and earned doctorates awarded, while the number of trade certificates and post-diplomas awarded between 1997-98 and 2002-03 decreased.[74]

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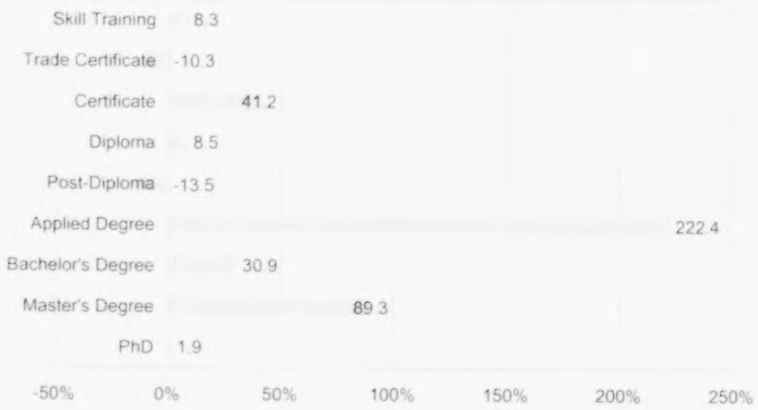
[73] Alberta Advanced Education, Key Performance Indicators Reporting System.

[74] Alberta Advanced Education, Key Performance Indicators Reporting System.

Percent Change in Credentials Awarded by Program Type, 1997-98 to 2002-03



3.3 Credentials Awarded Across Canada

The following sections provide context on the number of credentials awarded within Alberta by reviewing the number of credentials awarded in jurisdictions across Canada. Note that the data used for these sections are drawn from Statistics Canada sources – as a result, the Statistics Canada data for Alberta may be slightly inconsistent with the data discussed earlier that was obtained from Alberta Advanced Education's Key Performance Indicators Reporting System.

Statistics Canada collects data on the number of credentials awarded by province for four main credential categories: college certificate and diplomas; bachelor's and other undergraduate degrees; master's degrees; and earned doctorates (PhD). Bachelor's and other undergraduate degrees include undergraduate degrees as well as professional degrees in medicine and law. Unfortunately, although data on the number of degrees awarded in Canada is available to 2001, data on the number of college certificates and diplomas awarded is only available to 1998.

3.3.1 College Certificates and Diplomas

At 35.4%, Prince Edward Island had the most significant increase in college certificate and diplomas awarded from 1997 to 1998 (most current year available), followed by Newfoundland and Labrador at 20.6% (Table 12, Appendix C). The number of college credentials awarded within Alberta remained essentially constant while Saskatchewan and Manitoba had decreases in college credentials awarded from 1997 to 1998.[75]

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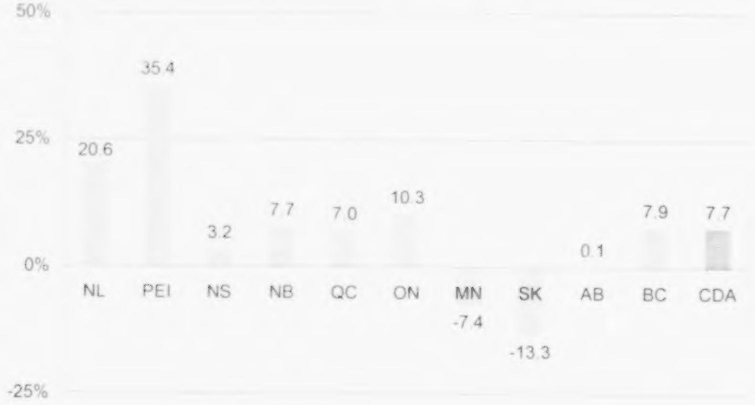
[75] Statistics Canada. *Education in Canada, 2000*. 2001. Catalogue 81229XPB. pp. 124-125.

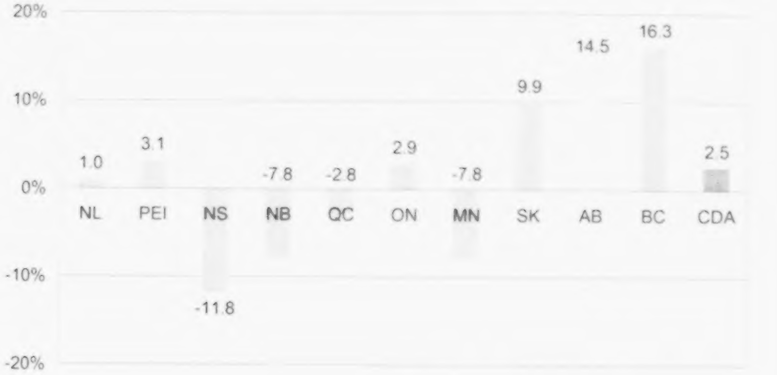
Percent Change in College Certificates and Diplomas Awarded by Province, 1997 to 1998



3.3.2 Bachelor's and Other Undergraduate Degrees

Between 1997 and 2001, the number of bachelor's and other undergraduate degrees awarded in Canada grew slightly from 125,796 to 128,975 – an increase of 2.5% (Table 13, Appendix C). British Columbia had the most significant increase at 16.3%, followed by Alberta and Saskatchewan at 14.5% and 9.9% respectively. Many of the remaining provinces had decreases in the number of bachelor's and other undergraduate degrees awarded from 1997 to 2001.

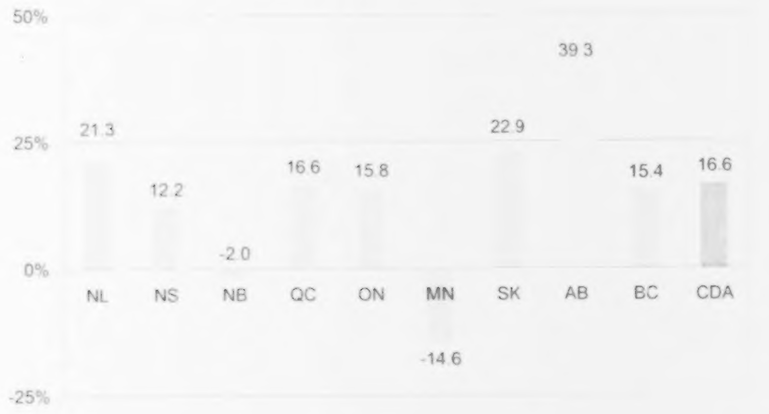
Percent Change in Bachelor's and Other Undergraduate Degrees Awarded by Province, 1997 to 2001



3.3.3 *Master's Degrees*

Between 1997 and 2001, the number of master's degrees awarded in Canada also grew, rising from 21,319 to 24,865 – an increase of 16.6% (Table 14, Appendix C). Alberta had the highest increase (39.3%), followed by Saskatchewan and Newfoundland and Labrador at 22.9% and 21.3% respectively. Note that Prince Edward Island is not included in the analysis of master's and earned doctorates awarded due to the low numbers of enrolments and graduates for these categories within the province.[76]

Percent Change in Master's Degrees Awarded by Province, 1997 to 2001



3.3.4 *Earned Doctorates*

In contrast to the growth trends for bachelor's and other undergraduate degrees and master's degrees, the number of earned doctorates awarded within Canada declined from 3,966 in 1997 to 3,715 in 2001 – a drop of 6.3% (Table 15, Appendix C). All provinces had decreases in the number of earned doctorates awarded with the exception of British Columbia and New Brunswick.[77]

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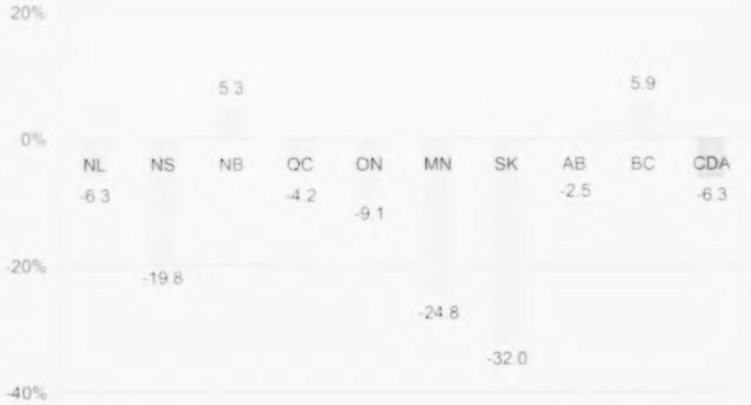
[76] Statistics Canada, *Education in Canada, 2000*, 2001, Catalogue 81229XPB, pp. 124-125; Statistics Canada, special draft tabulation for Alberta Advanced Education.

[77] Statistics Canada, *Education in Canada, 2000*, 2001, Catalogue 81229XPB, pp. 124-125; Statistics Canada, special draft tabulation for Alberta Advanced Education.

Percent Change in Earned Doctorates Awarded by Province, 1997 to 2001



The substantial drop in the number of earned doctorates awarded is a concern. Individuals who obtain earned doctorates have the specialized skills and knowledge required for innovation and commercialization, increasingly critical in a knowledge-based economy.

Additionally, an earned doctorate is almost always a prerequisite for post-secondary teaching and research positions. Given the high number of faculty retirements projected over the next decade, any decrease in earned doctorates awarded could exacerbate predicted shortages.[78]

Fortunately, more current Alberta Advanced Education data indicate that both PhD enrolments and the number of earned doctorates awarded within Alberta have increased from 1997-98 to 2002-03. As a result, once new years of data become available through Statistics Canada, a reversal of the decreasing trend may be observed. It should also be noted that the 1999 and 2000 data obtained from Statistics Canada are draft – finalized data may result in somewhat different trends than those presented above.

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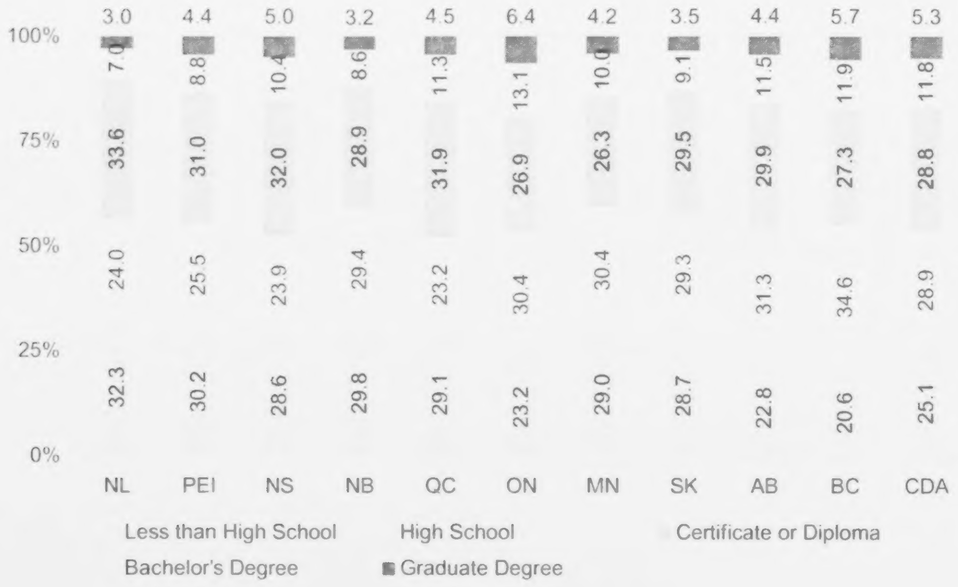
[78] Robert J. Giroux, "Looking down the road by the numbers: Challenges to universities in the next 10 years," *Policy Options*, vol. 24, no. 8, September 2003, pp. 10-14.

3.4 Overall Educational Attainment Across Canada

The overall level of educational attainment provides an indication of the economic and social well being of individuals, as well as society as a whole. Increased levels of education are also critical to the expansion of scientific and cultural knowledge and are indicative of a jurisdictions' capacity to supply the knowledge-based economy.[79] Educational attainment levels are influenced by many factors, several of which have been discussed such as high school completion, credit enrolment levels, and advanced education completion. In addition, immigration and inter-provincial migration can have a substantial effect.

In recent years, Alberta has been the beneficiary of substantial inter-provincial migration and to a lesser extent immigration (refer to Appendix B). Many of these new arrivals come to the province with higher levels of educational attainment (college and university level education) than the general population. As a result, Alberta's overall level of educational attainment is among the highest in Canada despite high school and advanced education completion rates that are somewhat lower than the national average.

Educational Attainment Age 15 Plus by Province, 2003



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[79] Organisation for Economic Co-operation and Development. *Education at a Glance: OECD Indicators 2002*. 2002. p. 50.

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The overall level of educational attainment provides an indication of the economic and social well being of individuals, as well as society as a whole. Increased levels of education are also critical to the expansion of scientific and cultural knowledge and are indicative of a jurisdictions' capacity to supply the knowledge-based economy.[79] Educational attainment levels are influenced by many factors, several of which have been discussed such as high school completion, credit enrolment levels, and advanced education completion. In addition, immigration and inter-provincial migration can have a substantial effect.

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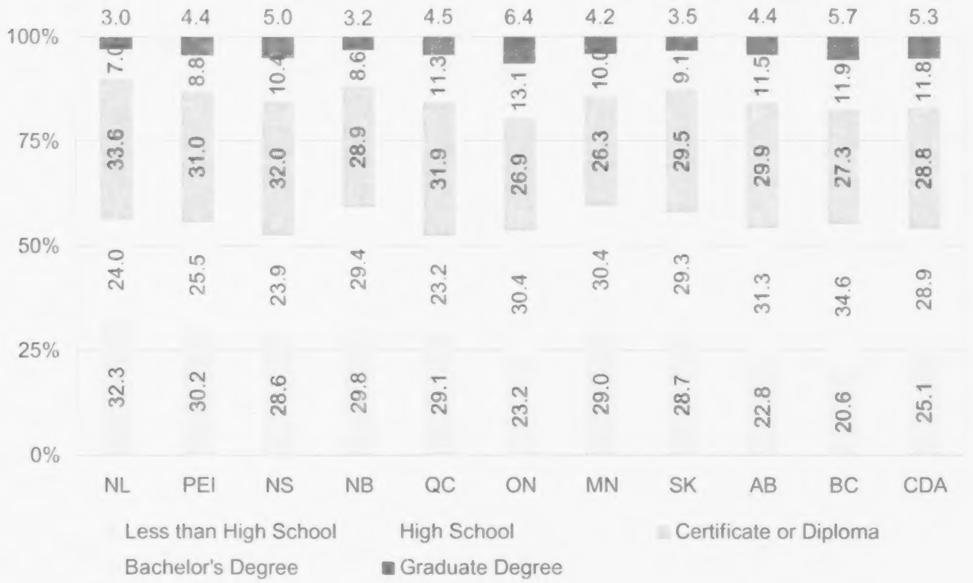

Educational Attainment Age 15 Plus by Province, 2003

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[79] Organisation for Economic Co-operation and Development, *Education at a Glance: OECD Indicators 2002*, 2002, p. 50.

Based on Statistics Canada 2003 data, Albertans who have not completed high school and Albertans with high school completion as their highest level of educational attainment comprise 22.8% and 31.3% of the population age 15 years and older respectively. These figures are very comparable to national averages, although three provinces (Nova Scotia, Québec and Ontario) have smaller proportions of their population with less than high school as the highest level of educational attainment.[80]

For educational attainment levels higher than high school completion, Alberta compares well to the national average and to most other provinces. Alberta has the fifth highest proportion of its population with a certificate or diploma (29.9%), the third highest proportion with a bachelor's degree (11.5%), and is tied for the fifth highest proportion with a graduate degree (4.4%).[81]

Although Alberta's higher educational attainment levels allow the province to compete successfully, there are many areas where advancements can be made. For example, a sizeable portion of Albertans do not have high school completion. Given the substantial amount of technology now integrated into everyday life and work activities, high school completion is increasingly considered the minimal level of educational attainment necessary to function successfully within society.[82] Improvements to high school completion rates are one way Alberta can maintain its competitive advantage – in addition to the province's continuing focus on attracting educated and skilled inter-provincial and international migrants.

3.5 Aboriginal Educational Attainment in Alberta

Although the level of educational attainment within Alberta's aboriginal population has improved since 1996, Aboriginal populations still have comparatively lower levels of attainment. Based on 2001 census data, 48% of Alberta's age 15 plus Aboriginal population had less than a high school education compared to 30% for the non-Aboriginal population.[83]

Similarly, for higher levels of educational attainment non-Aboriginals tend to be more educated than the Aboriginal population. Specifically, 31% of non-Aboriginals had a certificate or diploma in 2001 compared to 25% for Alberta Aboriginals while 16% of non-Aboriginals had a university degree compared to only 4% for Aboriginals.

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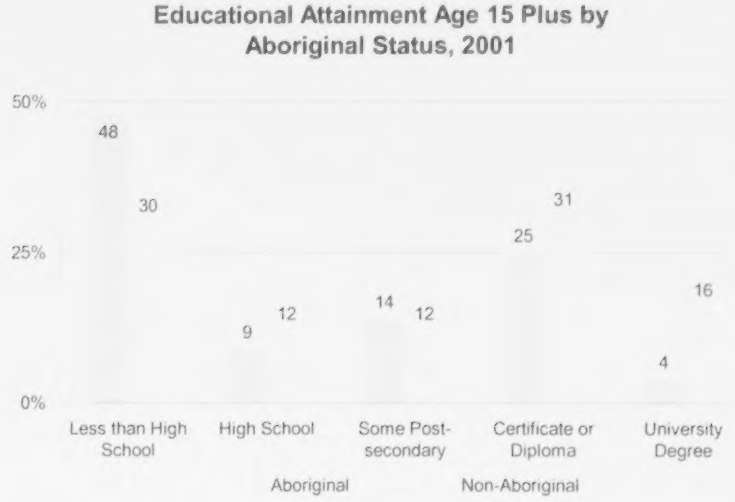
[80] Statistics Canada, *CANSIM*, Table 282-0004.

[81] Statistics Canada, *CANSIM*, Table 282-0004.

[82] Human Resources Development Canada, *Job Futures (2000) World of Work: Overviews and Trends*, 2002, p. 15.

[83] Statistics Canada, special tabulation for Alberta Advanced Education.



Even with the positive trend towards increasing levels of Aboriginal educational attainment, further advances are necessary to improve Aboriginal advanced education completions, particularly in longer-term, university level programs. Demographically, Alberta's Aboriginal population is increasing at a faster rate than the non-Aboriginal population (refer to Appendix B), with over 52,000 Alberta Aboriginals between the ages of 5 and 19 in 2001.[84] As these Aboriginal youth move into Alberta's advanced education system, they will need greater academic and cultural support systems to help reach their academic goals.

3.6 Advanced Education Graduate Satisfaction

3.6.1 Post-secondary Graduate Satisfaction

Satisfaction levels of recent graduates are an important measure of the performance of Alberta's advanced education system. Alberta Advanced Education regularly surveys post-secondary graduates (from publicly funded post-secondary institutions) for feedback on various themes including transition from school to work, employment income, as well as satisfaction with the quality of their post-secondary education (surveys are now administered every second year).

Graduates' satisfaction with the overall quality of their post-secondary education experience continues to remain strong. Satisfaction for the system as a whole has remained relatively constant, increasing slightly from 1998-99 to 2000-01 and then decreasing to 79% in 2001-02. Graduates of Alberta's private university colleges consistently have the highest levels of satisfaction, followed by college graduates. Satisfaction rates for university and technical institute graduates are also high, but fall below those of the other sectors.[85]

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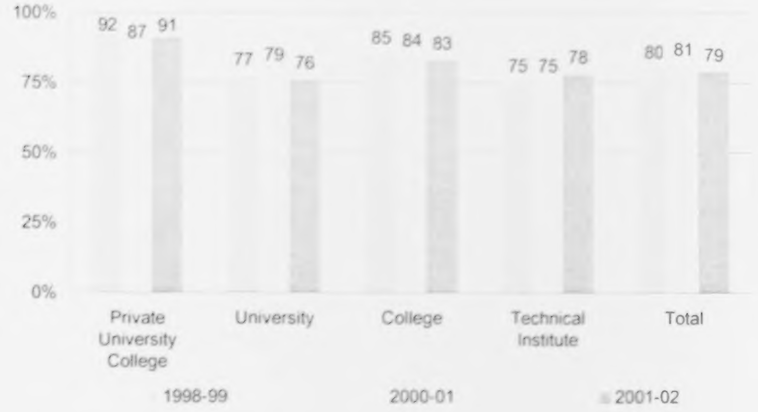
[84] Alberta Human Resources and Employment. Economic and Demographic Analysis Unit.

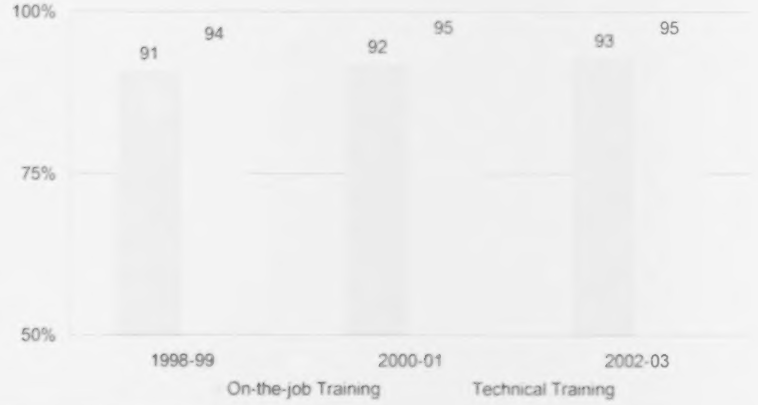
Post-secondary Graduate Satisfaction with the Overall Educational Quality, 1998-99 to 2001-02



3.6.2 Apprenticeship Graduate Satisfaction

Alberta Advanced Education also regularly surveys apprenticeship graduates to determine their level of satisfaction with their technical training (completed at an advanced education institution) and their level of satisfaction with their on-the-job training (surveys are administered every second year).

Apprenticeship Graduate Satisfaction, 1998-99 to 2002-03



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[85] Alberta Learning. *Annual Report 2002/2003*. 2003. p. 19; Alberta Learning. *Annual Report 2003/2004*. 2004. p. 20.

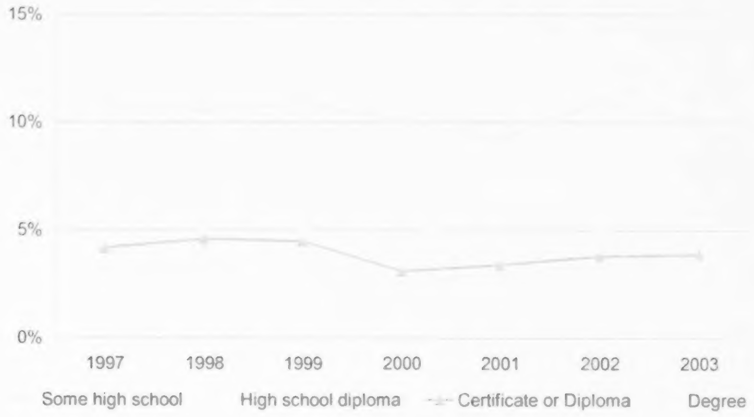
Survey results indicate that apprenticeship graduates' satisfaction with both their technical and on-the-job training remains very strong. Between 1998-99 and 2002-03, satisfaction with on-the-job training increased from 91% to 93%, while satisfaction with technical training increased from 94% to 95% over the same period.[86]

3.7 Labour Market Outcomes

Alberta's advanced education system prepares learners for a variety of roles, both within society at large as well as within the workplace. Although the benefits of obtaining an advanced education are substantial and varied, labour market benefits are often a prominent consideration driving an individual's decision to pursue advanced education studies. This is not surprising given the substantial investment of time and resources required to enroll, as well as the opportunity costs associated with delayed workforce entry.

For almost all countries belonging to the Organisation for Economic Co-operation and Development, the level of labour force participation increases with the level of educational attainment.[87] This is certainly the case in Alberta where college and university graduates have a higher level of labour market attachment than individuals without these credentials.

Unemployment Rate by Highest Level of Educational Attainment, Alberta, 1997 to 2003



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[86] Alberta Learning, *Annual Report 2003/2004*, 2004, p. 19.

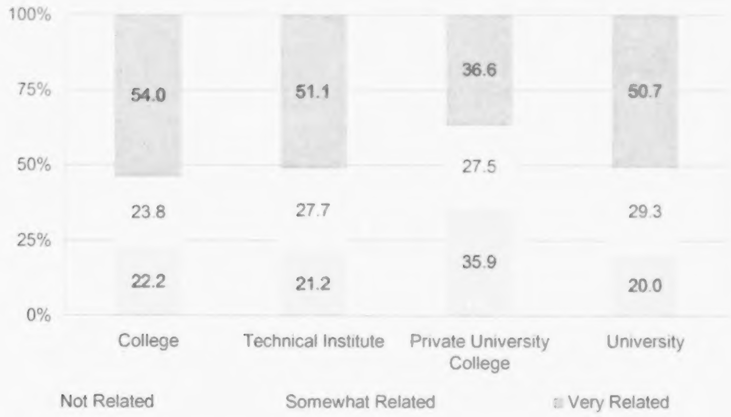
[87] Organisation for Economic Co-operation and Development, *Education at a Glance: OECD Indicators 2003*, 2003, p. 13.

Based on Statistics Canada Labour Force Survey data from 1997 to 2003, the unemployment rate of individuals with and without high school completion (as the highest level of educational attainment) has been consistently higher than that of college/technical institute graduates (certificate and diploma programs) and university graduates (degree programs).[88]

In addition to lower levels of unemployment, individuals with higher levels of educational attainment can expect to earn a higher annual salary, on average, than individuals who did not complete high school or individuals who completed high school but did not go on to advanced education studies. Based on Statistics Canada Labour Force Survey data from 1997 and 2003, each progressive level of educational attainment results, on average, in higher annual earnings regardless of where one lives in Canada.

A further labour market outcome consideration is the relationship between post-secondary graduates' field of study and employment. Results from the recently completed Alberta Advanced Education Graduate Outcomes Survey indicate that the majority of post-secondary graduates from Alberta's publicly funded post-secondary institutions are able to secure employment that is either somewhat related or very related to their field of study.

Relation between Employment and Graduating Field of Study, Class of 2001-02



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[88] Statistics Canada, *CANSIM*, Table 282-0004.

Based on Statistics Canada Labour Force Survey data from 1997 to 2003, the unemployment rate of individuals with and without high school completion (as the highest level of educational attainment) has been consistently higher than that of college technical institute graduates (certificate and diploma programs) and university graduates (degree programs).[88]

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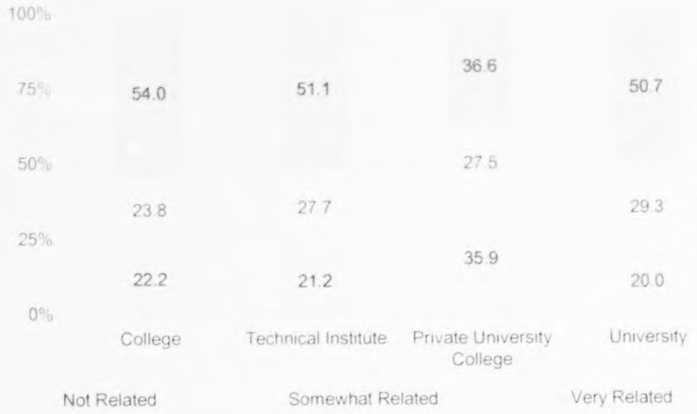

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[88] Statistics Canada, *CANSIM*, Table 282-0004.

Specifically, 2001-02 graduates of Alberta's university sector had the strongest association between education and employment at 80.0% (50.7% very related and 29.3% somewhat related), followed closely by technical institute graduates (78.8%) and college graduates (77.8%). 2001-02 graduates from Alberta's private university college sector also had a strong association between education and employment (64.1%), although somewhat lower than graduates from Alberta's other post-secondary sectors.[89]

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[89] Alberta Advanced Education, special tabulation from results of 2001/02 Post-secondary Institution Graduate Outcomes Survey.

4 AFFORDABILITY

The financial investment in advanced education is substantial – not only for students and their families but also for taxpayers (who support advanced education through income and consumption taxes) and institutions (who provide supplementary support through revenues from ancillary enterprises such as parking fees and food services). This chapter focuses on broad measures of funding such as total spending on advanced education before reviewing more specific measures such as student financial assistance and student debt.

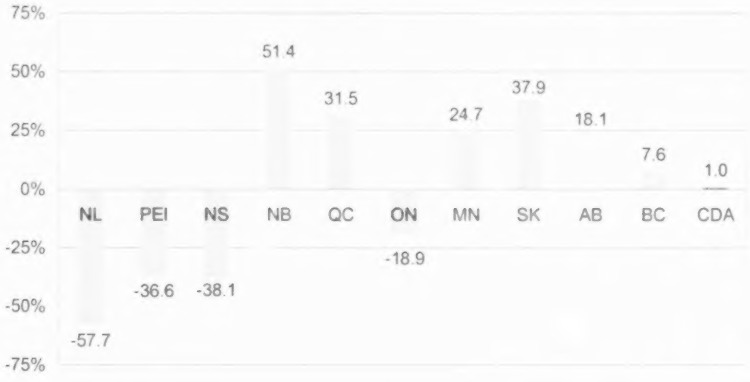
4.1 Total Advanced Education Expenditures Across Canada

Total spending on advanced education is a comprehensive measure of total financial support in that it includes public expenditures by all levels of government as well as private expenditures by students and their families, institutions, businesses and industry. Public expenditures include operating grants to institutions, funds for infrastructure, scholarships, student loan costs and funding for sponsored research. Private expenditures include tuition fees, third-party contracts, funding for sponsored research and donations.

4.1.1 Trade and Vocational

Between 1997-98 and 2001-02 total expenditures (in constant 2001 dollars) on trade and vocational education within Canada remained static, increasing slightly (1.0%) over this time period. Alberta's increase of 18.1% was well above the national average, but lower than the top ranked province, New Brunswick, at 51.4% (Table 16, Appendix C).[90]

Percent Change in Total Expenditures on Trade and Vocational Education by Province, 1997-98 to 2001-02



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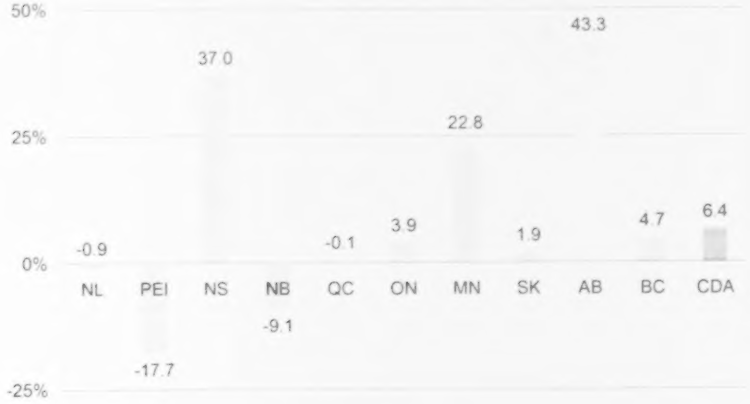
[90] Statistics Canada and Council of Ministers of Education, Canada, *Education Indicators in Canada: Report of the Pan-Canadian Education Indicators Program 2003*, 2003, Catalogue 81582XPE, pp. 271-272.

4.1.2 Colleges

Between 1997-98 and 2001-02 total expenditures (in constant 2001 dollars) at Canadian colleges increased 6.4%, substantially higher than the 1.0% increase for trade and vocational enrolments over the same time period. At 43.3%, Alberta had the highest increase in total college sector expenditures, followed by Nova Scotia at 37.0% and Manitoba at 22.8% (Table 17, Appendix C). Prince Edward Island and New Brunswick were the only provinces to have a decrease in total expenditures within the college sector during this time period.

Percent Change in Total College Sector Expenditures by Province, 1997-98 to 2001-02



4.1.3 Universities

At 33.5%, Alberta also had the most significant increase in total expenditures within the university sector (constant 2001 dollars) between 1997-98 and 2001-02. This increase was well above the national average of 20.9% (Table 18, Appendix C). Interestingly, unlike expenditures on trade and vocational education and expenditures within the college sector, total spending on universities increased across all provinces between 1997-98 and 2001-02.[91]

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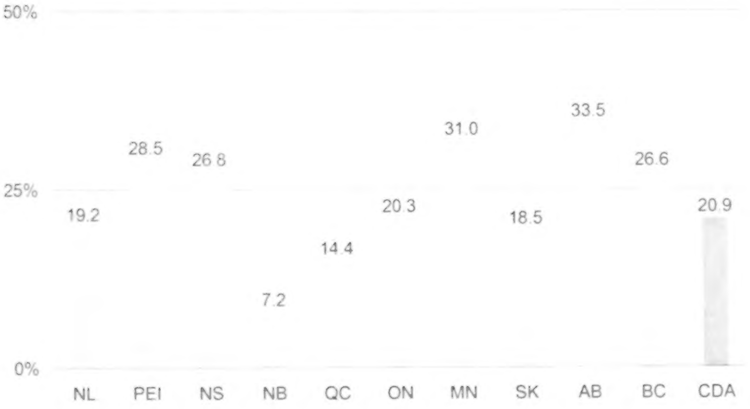
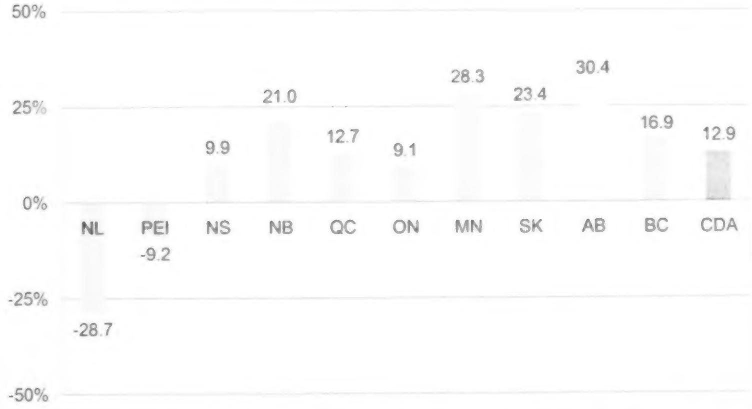
[91] Statistics Canada and Council of Ministers of Education, Canada, *Education Indicators in Canada: Report of the Pan-Canadian Education Indicators Program 2003*, 2003, Catalogue 81582XPE, pp. 271-272.



Percent Change in Total University Sector Expenditures by Province, 1997-98 to 2001-02

4.1.4 *All Sectors*

When trade and vocational expenditures are combined with expenditures within the college and university sectors, Alberta has the most significant increase in total spending (in constant 2001 dollars) between 1997-98 and 2001-02 at 30.4% (Table 19, Appendix C). Most other provinces also register strong increases over this period with the exception of Newfoundland and Labrador (decrease of 28.7%) and Prince Edward Island (decrease of 9.2%).[92]



Percent Change in Total Advanced Education Expenditures by Province, 1997-98 to 2001-02

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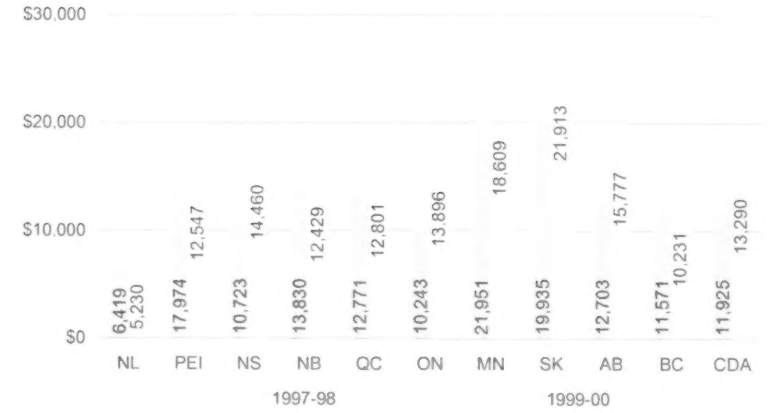
[92] Statistics Canada and Council of Ministers of Education, Canada. *Education Indicators in Canada: Report of the Pan-Canadian Education Indicators Program 2003*, 2003, Catalogue 81582XPE, pp 271-272.

4.1.5 Per Full-time Equivalent Student

Although total (public and private) expenditures provide an indication of the total amount of financial resources used to support advanced education, they do not give an indication of the number of students that are supported through these financial resources.



Total College Sector per FTE Expenditures by Province, 1997-98 and 1999-00

Using a measure of full-time equivalency (FTE) to account for full and part-time enrolment loads, Alberta's total college sector per FTE expenditures (constant 2001 dollars) increased from $12,703 in 1997-98 to $15,777 in 1999-00 (most current year available).[93] By 1999-00, Alberta's expenditures were substantially higher than the Canadian average of $13,290 and third highest after Saskatchewan and Manitoba.

Alberta's total university sector per FTE expenditures also increased between 1997-98 and 1999-00 – rising from $20,091 to $23,207 (constant 2001 dollars). By 1999-00, Alberta's expenditures were slightly higher than the Canadian average ($23,159), and fourth highest after British Columbia, Manitoba and Saskatchewan.

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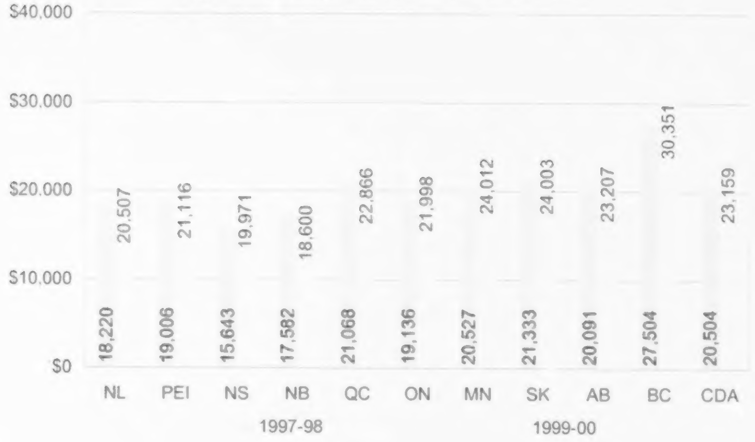
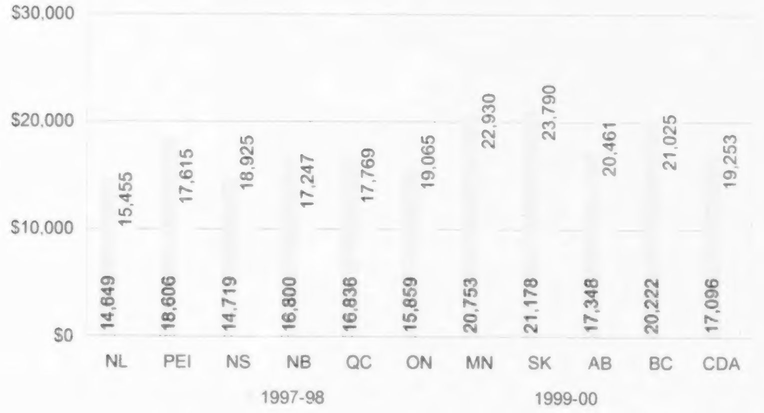
[93] Statistics Canada and Council of Ministers of Education, Canada, *Education Indicators in Canada: Report of the Pan-Canadian Education Indicators Program 2003*, 2003, Catalogue 81582XPE, p. 277.

Total University Sector per FTE Expenditures by Province, 1997-98 and 1999-00



For college and university sectors combined, Alberta's expenditures per FTE student (constant 2001 dollars) increased from $17,348 in 1997-98 to $20,461 in 1999-00 (most current year available). By 1999-00, Alberta's total per FTE expenditures were well above the national average of $19,253, and fourth highest after Saskatchewan, Manitoba and British Columbia.

Total Advanced Education per FTE Expenditures by Province, 1997-98 and 1999-00



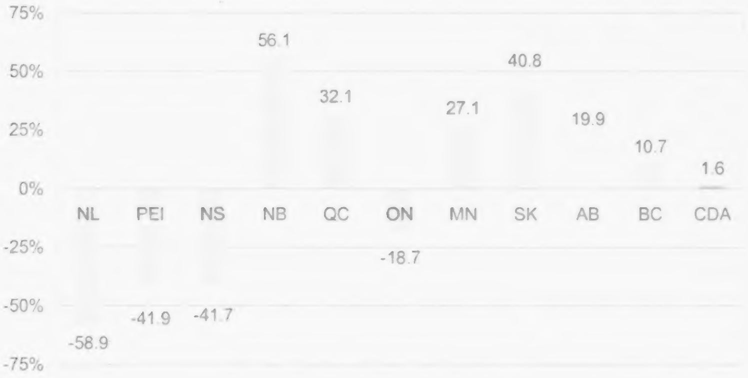
4.2 Public Advanced Education Expenditures Across Canada

Public expenditures are a measure of the overall level of government (taxpayer) support for advanced education. As mentioned earlier, public expenditures in support of advanced education include operating grants to institutions, funds for infrastructure (either for facility expansion or maintenance), scholarships, student loan costs and funding for sponsored research activity (from federal granting agencies, provincial granting agencies and other public sources).

4.2.1 Trade and Vocational

Similar to the trend observed for total (public and private) expenditures on trade and vocational education in Canada, there was a slight increase in public expenditures nationally between 1997-98 and 2001-02 (constant 2001 dollars). At 19.9%, Alberta's increase over this period was well above the national average and fifth highest after New Brunswick, Saskatchewan, Québec and Manitoba (Table 20, Appendix C).[94]

Percent Change in Public Expenditures on Trade and Vocational Education by Province, 1997-98 to 2001-02



4.2.2 Colleges

Within the college sector, similar to Alberta's top ranked increase for total expenditures (public and private) between 1997-98 and 2001-02, the province's increase in public expenditures was also the highest in the country over this time period (constant 2001 dollars). Alberta's increase of 46.2% was well above the national average of 5.2% and slightly higher than the 43.5% increase observed in Newfoundland and Labrador (Table

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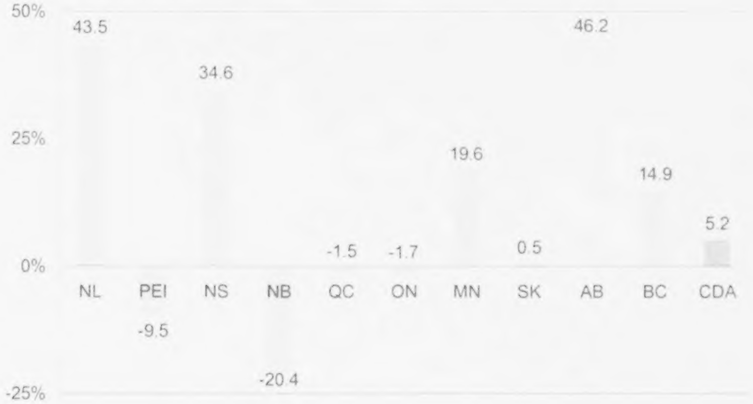
[94] Statistics Canada and Council of Ministers of Education, Canada. *Education Indicators in Canada: Report of the Pan-Canadian Education Indicators Program 2003*. 2003. Catalogue 81582XPE, pp. 280-281.

21, Appendix C). Prince Edward Island and New Brunswick (and to a lesser extent Ontario and Québec) registered decreases in public expenditures within the college sector between 1997-98 and 2001-02.

Percent Change in College Sector Public Expenditures by Province, 1997-98 to 2001-02



4.2.3 Universities

Between 1997-98 and 2001-02, all provinces increased university sector public expenditures (constant 2001 dollars). At 34.7%, British Columbia had the highest increase followed by Manitoba (27.9%) and Alberta (24.8%).[95] The consistent increase in university sector public expenditures across all provinces contrasted with variable public expenditure trends observed for the college sector as well as for trade and vocational education (Table 22, Appendix C).

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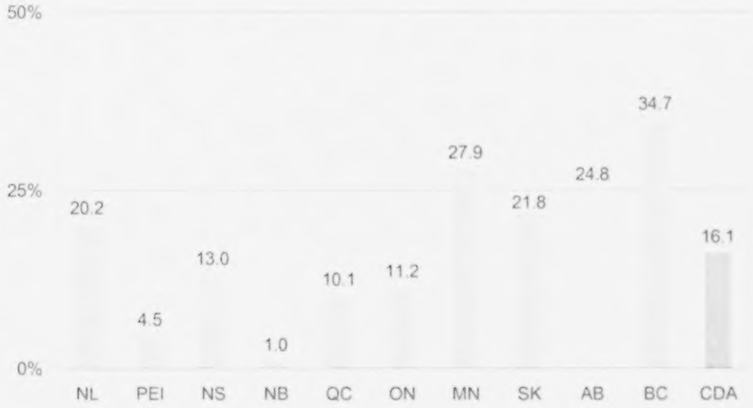
[95] Statistics Canada and Council of Ministers of Education, Canada. *Education Indicators in Canada: Report of the Pan-Canadian Education Indicators Program 2003*. 2003. Catalogue 81582XPE. pp. 280-281.

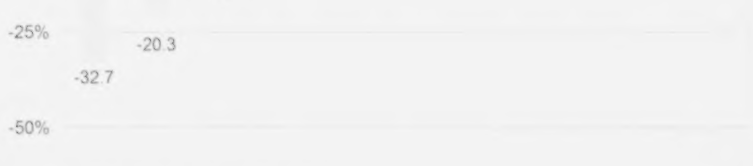
Percent Change in University Sector Public Expenditures by Province, 1997-98 to 2001-02



4.2.4 *All Sectors*

Public expenditures on advanced education (all sectors combined) increased 9.3% nationally between 1997-98 and 2001-02 (constant 2001 dollars). At 27.2%, Saskatchewan had the highest increase over this time period, followed closely by Alberta at 26.7% and Manitoba at 26.5% (Table 23, Appendix C). Three provinces (Newfoundland and Labrador, Prince Edward Island, and Nova Scotia) registered decreases in public expenditures on advanced education between 1997-98 and 2001-02.[96]

Percent Change in Public Advanced Education Expenditures by Province, 1997-98 to 2001-02



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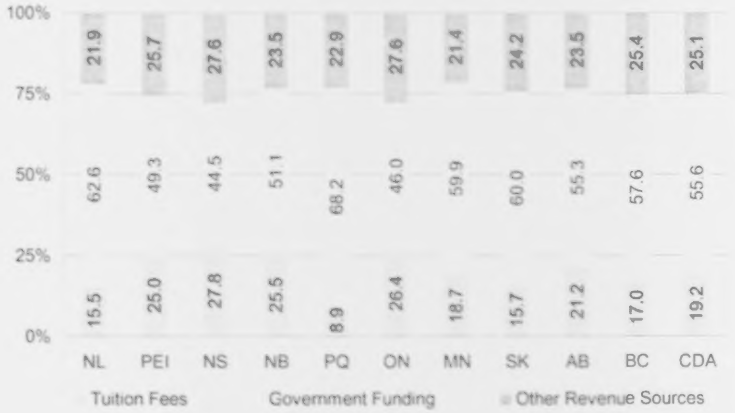
[96] Statistics Canada and Council of Ministers of Education, Canada. *Education Indicators in Canada: Report of the Pan-Canadian Education Indicators Program 2003*. 2003. Catalogue 81582XPE, pp. 280-281.

4.3 Total Institutional Revenues by Source Across Canada

Despite significant provincial variation in total and public expenditures on advanced education between 1997-98 and 2001-02, there is a relatively high degree of consistency in institutional revenue sources among provinces. Based on university and college revenues for 2003-04, students in most provinces were contributing between 15 to 28% of total revenues while governments (all levels) were contributing between 46 to 63%.

A notable exception exists in Québec where students contribute 8.9% towards total revenues while governments contribute 68.2%. Revenue sources at Alberta's advanced education institutions are very similar to the national average – students and government contribute 21.2% and 55.3% respectively, compared to 19.2% and 55.6% for Canada overall.[97]

Total Institutional Revenues by Source by Province, 2003-04



4.4 Total Institutional Revenues by Source in Alberta

Within Alberta, total institutional revenue sources are relatively consistent among sectors, with the exception of the private university college sector where tuition fees are higher and students contribute proportionately more to total revenues. Additionally, private university colleges obtain substantial revenues from other sources (in particular private donations).

For the three public sectors (colleges, technical institutes and universities), student sources accounted for 20.0 to 25.8% of total institutional revenues in 2002-03 while

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[97] Statistics Canada, *CANSIM*, Table 385-0007.

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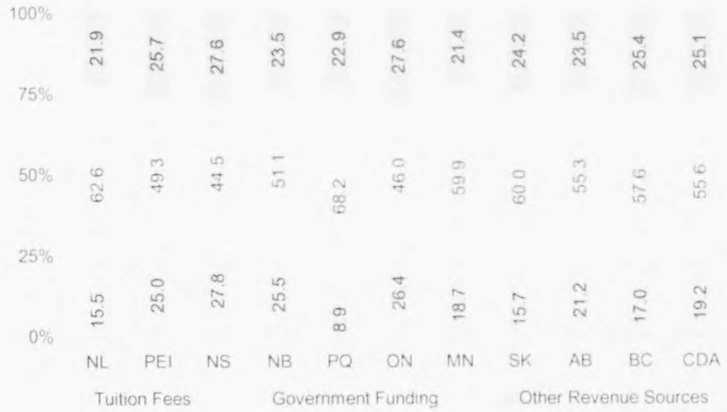

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For the three public sectors (colleges, technical institutes and universities), student sources accounted for 20.0 to 25.8% of total institutional revenues in 2002-03 while government funding accounted for 49.7 to 53.8% of total revenue.[98] Note that Alberta Advanced Education revenue data are not directly comparable to the Statistics Canada revenue data described earlier due to categorization differences.

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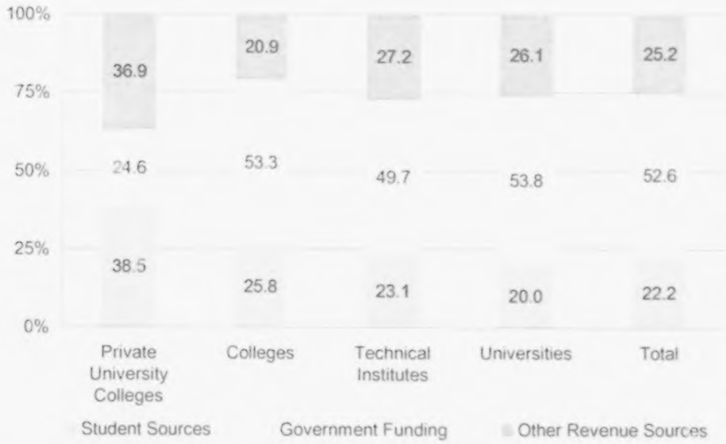
[97] Statistics Canada, *CANSIM*, Table 385-0007.

Revenues by Source by Sector 2002-03



4.5 Advanced Education System Funding in Alberta

Alberta's public advanced education institutions provide both credit and non-credit learning opportunities. Generally, credit programs are programs approved by the Minister of Advanced Education where successful completion results in the conferment of a parchment signed by the chair of the institution's Board of Governors. In contrast, non-credit programs do not require the Ministerial approval and do not result in a Board-endorsed parchment.

Alberta Advanced Education's primary funding responsibility is to provide public institutions with ongoing operating grants to support the delivery of credit programs subject to the ministry's two tuition fee policies (post-secondary and apprenticeship). However, Alberta Advanced Education also provides limited operating grants for credit programs exempt from the post-secondary tuition fee policy (for example, select approved programs offered at private university colleges) as well as operating grants for limited non-credit programming (for example, grants for community programs). Alberta Infrastructure and Transportation provides funds for capital expansion, preservation and renewal projects as well as infrastructure maintenance. In addition, Alberta Advanced Education provides students with scholarship, grant and loan funding to support their studies.

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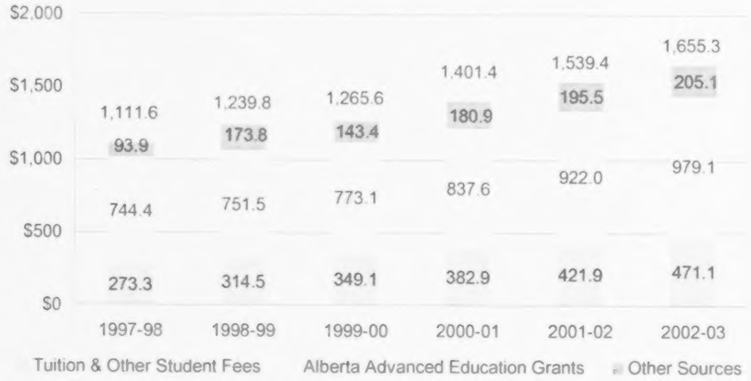
[98] Alberta Advanced Education, Financial Information Reporting System.

Alberta's post-secondary tuition fee policy regulates tuition and other mandatory fees paid by most credit program students with the exception of apprenticeship programs (regulated by the apprenticeship tuition fee policy), Banff Centre programs (which are mostly non-credit), private university college programs, off-campus activity (for which direct funding has not been provided by Alberta Advanced Education), third party contracts, and non-Alberta students in distance delivery programs. These exempted students account for roughly 10% of total credit enrolment at Alberta's publicly funded post-secondary institutions.

4.5.1 Revenue Sources for Credit Programs Subject to Policy

Over the last six years, total expenditures on credit programs subject to the post-secondary tuition fee policy (Net Operating Expenditures – NOE) have consistently increased, rising from $1,111.6 million in 1997-98 to $1,655.3 million in 2002-03 – an increase of 48.9% (Table 24, Appendix C). Over the same time period tuition and other student fees have increased 72.4%, Alberta Advanced Education grants have increased 31.5% and other revenue sources have increased 118.4%.[99]

Net Operating Expenditures by Revenue Source for Credit Programs Subject to Policy, 1997-98 to 2002-03 (millions of dollars)



Over the period 1997-98 to 2002-03, students consistently contributed around 27 to 28% of total post-secondary education costs since 1999-00. This contribution remains below the 30% threshold contained within the post-secondary tuition fee policy and is comparable to the proportion of costs contributed by students in most other provinces. Additionally, Alberta Advanced Education continues to provide the majority of funds to support credit program activity through ongoing operating grants.

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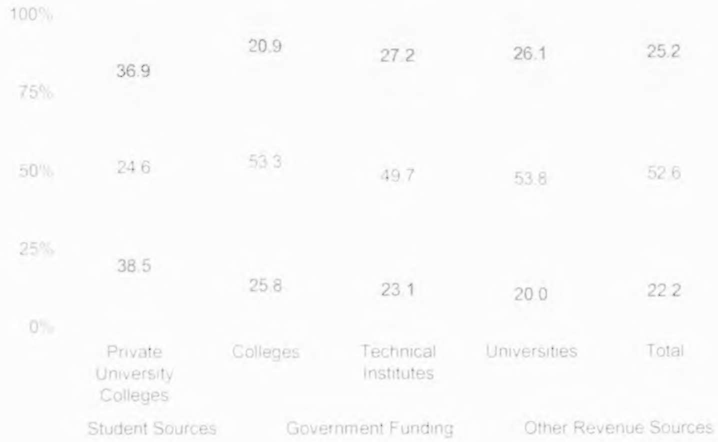

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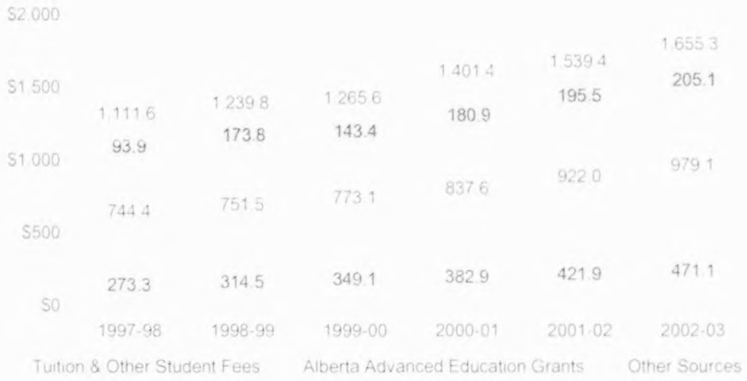

Net Operating Expenditures by Revenue Source for Credit Programs Subject to Policy, 1997-98 to 2002-03 (millions of dollars)

Over the period 1997-98 to 2002-03, students consistently contributed around 27 to 28% of total post-secondary education costs since 1999-00. This contribution remains below the 30% threshold contained within the post-secondary tuition fee policy and is comparable to the proportion of costs contributed by students in most other provinces. Additionally, Alberta Advanced Education continues to provide the majority of funds to support credit program activity through ongoing operating grants.

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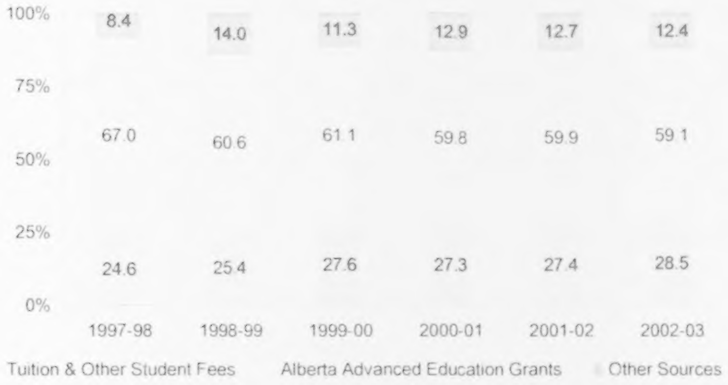
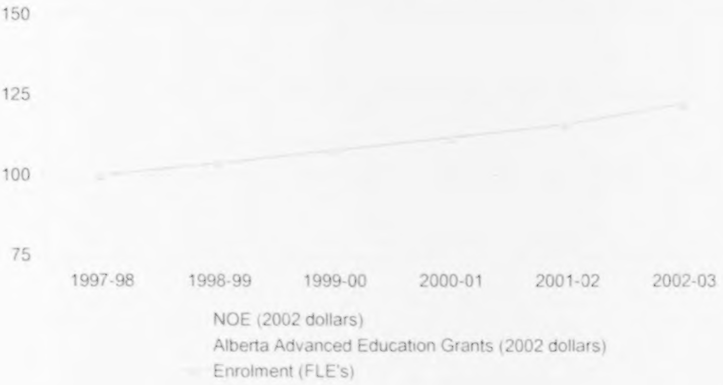
[99] Alberta Advanced Education, Financial Information Reporting System.

Sources of Funding for Credit Programs Subject to Policy as a Percentage of Net Operating Expenditures, 1997-98 to 2002-03



Although NOE and Alberta Advanced Education grants have consistently increased from 1997-98 to 2002-03 it is important to note that inflation and enrolments have also increased over this period. However, even after adjusting NOE to constant 2002 dollars (to account for inflation) and indexing both NOE and enrolment increases to 1997-98 values, the growth in constant dollar NOE has outpaced that of enrolments from 1997-98 to 2002-03.[100]

Change in Net Operating Expenditures, Alberta Advanced Education Grants and FLE Enrolment, 1997-98 to 2002-03 (1997-98 = 100)



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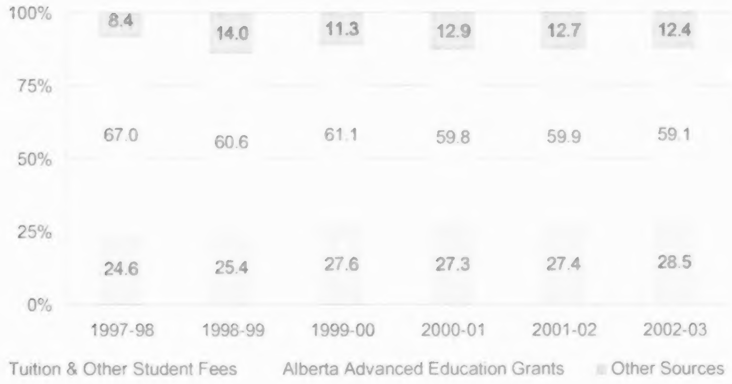
[100] Alberta Advanced Education. Financial Information Reporting System; Statistics Canada. *CANSIM*, Table 326-0002.

Sources of Funding for Credit Programs Subject to Policy as a Percentage of Net Operating Expenditures, 1997-98 to 2002-03



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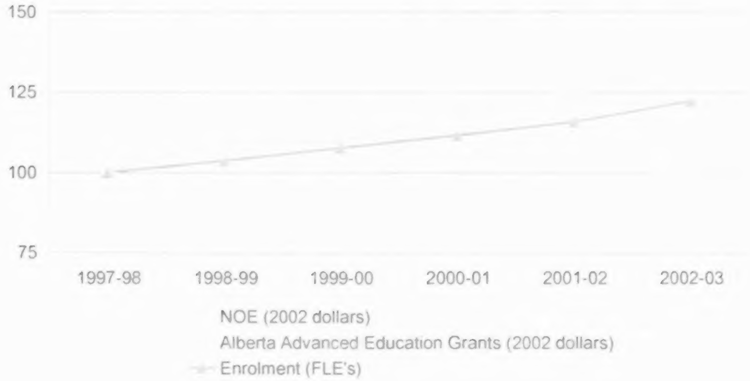

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[100] Alberta Advanced Education. Financial Information Reporting System; Statistics Canada. *CANSIM*, Table 326-0002.

4.5.2 Other Funding to Support Credit Programming

In addition to providing ongoing operating grants directly to institutions for credit programs subject to the post-secondary tuition fee policy, Alberta Advanced Education also provides ongoing grants to support three credit program arrangements exempt from the policy – apprenticeship programs, Banff Centre programs, and select programs at the not-for-profit publicly funded private university colleges. In 2002-03 this funding was $79.3 million for apprenticeship programs, $10.7 million for the Banff Centre, and $13.1 million for the publicly funded private university colleges.[101]

Additional funds are provided to public post-secondary institutions for capital expansion, preservation and renewal projects as well as ongoing funds for infrastructure maintenance (provided through Alberta Infrastructure and Transportation). In 2001-02, $98.1 million was provided for infrastructure maintenance while $140.9 million was provided for capital expansion, preservation and renewal projects. Infrastructure funding can vary significantly from year to year, depending on provincial finances and overall budget priorities of the Government of Alberta.

4.5.3 Funding to Support Non-credit Programming

Alberta Advanced Education provides limited operating funds to support non-credit programs and services through community program delivery, often in regions not directly served by an advanced education provider. Total Alberta Advanced Education funding of community programs has increased in recent years, reaching approximately $13 million (including over $6 million to Community Adult Learning Councils). Community programs and services receive additional funding support through grants from the federal government.

It is important to note that Alberta's publicly funded post-secondary institutions also provide non-credit learning opportunities including job-related, general interest, leisure and personal development courses and programs. Unlike community programs (which receive limited funding from Alberta Advanced Education) the funding of non-credit activity at advanced education institutions remains the primary responsibility of students.

4.6 Average Undergraduate Tuition Fees Across Canada

Each year, Statistics Canada collects tuition fee data from universities across Canada and adjusts these fee amounts by enrolment levels to develop a weighted average undergraduate tuition fee amount by province. This analysis is the best inter-provincial source of university tuition fee data available (note that Statistics Canada does not collect college tuition fee data).

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[101] Alberta Advanced Education, Financial Information Reporting System.

Based on the Statistics Canada data, between 1997-98 and 2004-05, average undergraduate tuition fees in Canada rose from $2,869 to $4,172, an increase of 45.5%. At 88.0%, British Columbia had the most significant increase while Newfoundland and Labrador was the only province to have a decrease over the same time period (18.8%). At 48.2%, Alberta's increase in average undergraduate tuition fees was just above the national average of 45.5%.[102]

Weighted Average Undergraduate Tuition Fees by Province, 1997-98 and 2004-05

	1997-98	2004-05	Change	% Change
NL	3,211	2,606	-605	-18.8
PEI	3,162	4,374	1,212	38.3
NS	3,892	5,984	2,091	53.7
NB	3,026	4,719	1,693	55.9
PQ	1,803	1,890	86	4.8
ON	3,293	4,960	1,667	50.6
MN	2,921	3,160	239	8.2
SK	3,074	4,894	1,820	59.2
AB	3,241	4,804	1,563	48.2
BC	2,518	4,735	2,217	88.0
CDA	**2,869**	**4,172**	**1,304**	**45.5**

By 2004-05, Alberta's average undergraduate tuition fees were $4,804, the fourth highest in Canada after Nova Scotia ($5,984), Ontario ($4,960) and Saskatchewan ($4,894). Québec's average undergraduate tuition fees of $1,890 were the lowest in Canada, followed by Newfoundland and Labrador ($2,606).

It is important to note that Québec's lower tuition fees apply to Québec residents only. Albertan's studying in Québec in 2004-05 would be required to pay tuition fees of $4,599, comparable to Alberta's average tuition fee amount. It is also important to note that Alberta's fees are comparable to most other provinces – only Newfoundland and Labrador and Manitoba have average undergraduate tuition fees that are more than 10% below Alberta's.

4.7 Student Financial Assistance in Alberta

To ensure that financial need is not a barrier to advanced education participation, the provincial and federal governments provide students with financial assistance based on need and achievement. Financial assistance is available to eligible students (full-time and part-time) who are registered in an approved program at either a public or private advanced education institution. Grants (needs-based) and scholarships (achievement-based) differ from student loans (needs-based) in that they do not have to be repaid by the student. Although loans are repaid, government still incurs substantial costs to support loan programs including interest payments made on behalf of the student while they are in school, as well as costs related to loan remission and other payment relief programs.

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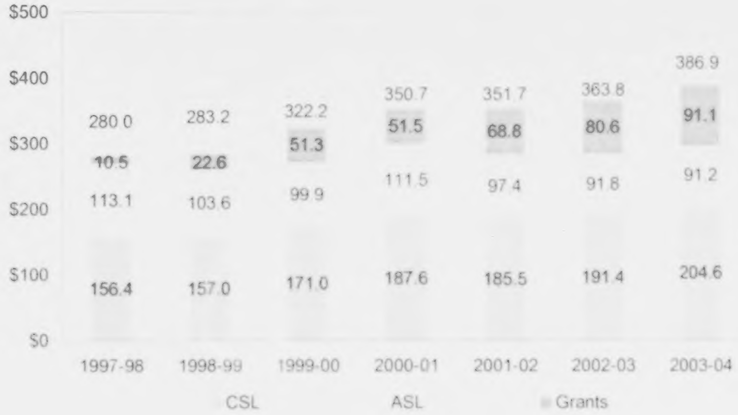
[102] Statistics Canada, special tabulation for Alberta Advanced Education.

4.7.1 Needs-Based Assistance

Between 1997-98 and 2003-04, the total amount of needs-based financial assistance awarded to Alberta students has grown from $280.0 million to $386.9 million – an increase of 38.2% (Table 25, Appendix C). However, growth in non-repayable grants has far exceeded that of Canada Student Loans (CSL) and Alberta Student Loans (ASL). Between 1997-98 and 2003-04 grant assistance increased from $10.5 million to $91.1 million – an increase of 764.1%. In contrast, CSL assistance increased 30.8% while ASL assistance actually decreased, dropping 19.3% between 1997-98 and 2003-04.[103]

Student Financial Assistance by Type, 1997-98 to 2002-03 (millions of dollars)



A substantial proportion of the 764.1% increase in grants is attributable to implementation of Alberta's loan relief program in 2001-02, where eligible first-time, first-year students receive a loan relief benefit in lieu of ASL (thus the decrease in ASL between 1997-98 and 2003-04). Total payments under the Loan Relief Benefit program reached $33.1 million in 2003-04.

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[103] Alberta Advanced Education, Learner Funding Branch.

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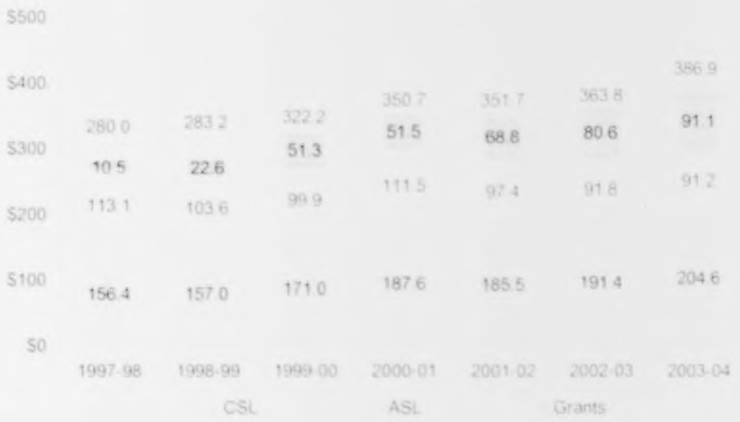

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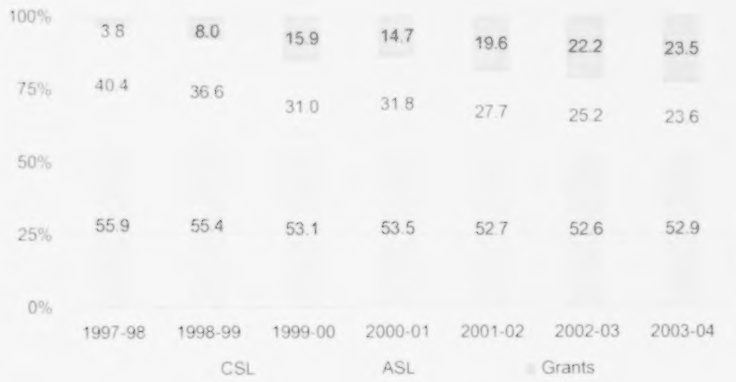
[103] Alberta Advanced Education, Learner Funding Branch.



Student Financial Assistance by Type as a Proportion of Total Needs-Based Assistance, 1997-98 to 2002-03

Implementation of the loan relief program as well as other increases in grant assistance have substantially changed the composition of student financial assistance. In 1997-98, non-repayable grants comprised 3.8% of total student financial assistance. By 2003-04 this proportion had increased to 23.5%, with CSL and ASL comprising 52.9% and 23.6% respectively.

4.7.2 Merit-Based Assistance

Between 1997-98 and 2003-04, the total amount of merit-based financial assistance awarded to Alberta students through Alberta Advanced Education has grown from $12.5 million to $37.5 million – an increase of 201.0%. A substantial proportion of this increase is the result of implementation of the Jimmie Condon, Jason Lang and Graduate Student achievement scholarships, which provided over $14.9 million in assistance in 2003-04.[104]

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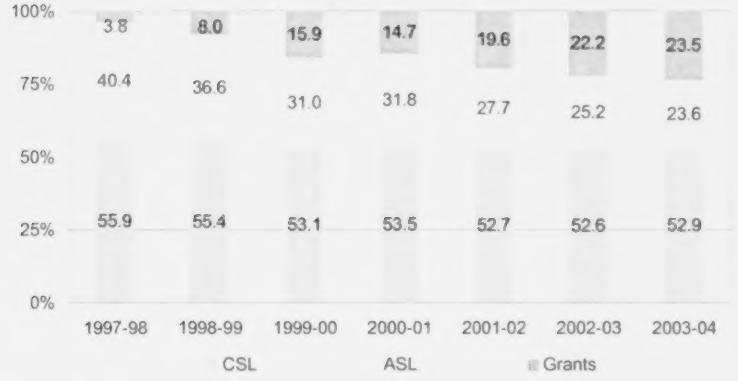
[104] Alberta Advanced Education, Learner Services Branch.

Student Financial Assistance by Type as a Proportion of Total Needs-Based Assistance, 1997-98 to 2002-03



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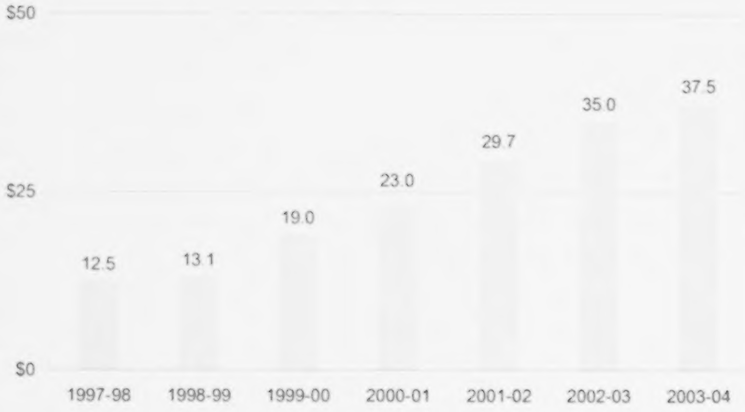
[104] Alberta Advanced Education, Learner Services Branch.

Total Scholarships Awarded, 1997-98 to 2003-04 (millions of dollars)



4.8 Student Debt Across Canada

The issue of student debt has received increasing media coverage across Canada as government fiscal restructuring policies of the mid 1990s and tuition fee increases associated with this restructuring have resulted in increasing student debt.

The most current inter-provincial data available on student debt was released by Statistics Canada in April 2004. The data were obtained from the National Graduates Survey (NGS), which surveys graduates of Canada's advanced education institutions two and five years after graduation. The most recent class to by surveyed by the NGS was the graduating class of 2000 (generally, every fifth annual graduating class is surveyed by Statistics Canada).

Not surprisingly, in comparison to the graduating class of 1995 the graduating class of 2000 had higher debt upon graduation. Specifically, for college students (Canada wide) who had student loans upon graduation the average debt was 21% higher for graduates of 2000 than graduates of 1995. Similarly, for bachelor's degree students (Canada wide) who had student loans upon graduation, the average student debt was 30% higher for graduates of 2000 than graduates of 1995.[105]

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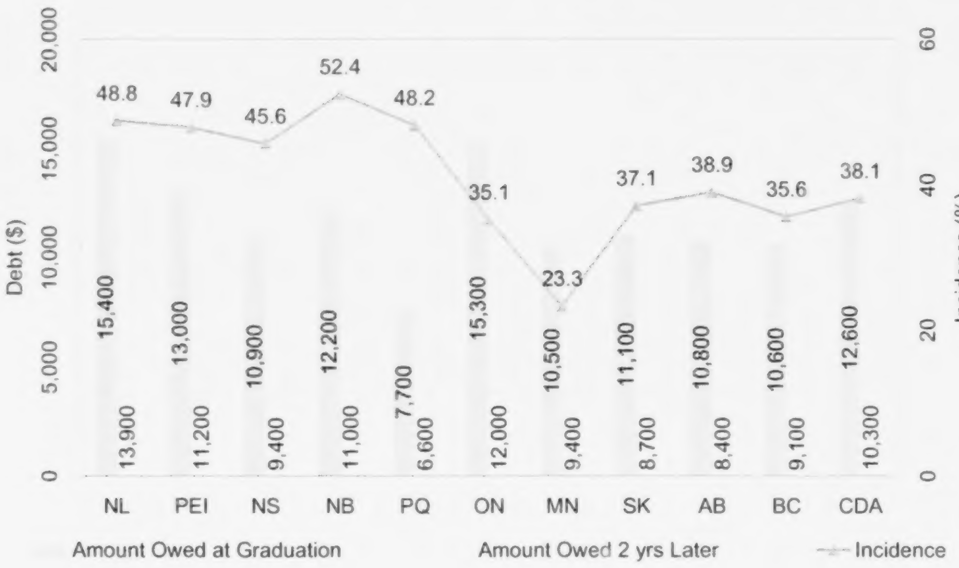
[105] Statistics Canada, *Class of 2000: Profile of postsecondary graduates and student debt*, 2004, Catalogue 81595MIE no. 016, p16.

4.8.1 *College Graduates*

Based on NGS data from the graduating class of 2000, 38.1% of college graduates across Canada reported having government student loan debt upon graduation. The incidence of government debt was highest for New Brunswick at 52.4%, followed by Newfoundland and Labrador (48.8%) and Québec (48.2%). Alberta's incidence rate was 38.9%, fifth lowest in the country and slightly higher than the national average of 38.1%.

Government Debt for College Graduates by Province, Class of 2000



In terms of debt amounts upon graduation, Newfoundland and Labrador college graduates had the highest average government student loan debt at $15,400, followed by Ontario ($15,300) and Prince Edward Island ($13,300). At $10,800, Alberta's college graduates had the fourth lowest average government student loan debt in the country upon graduation.

Two years after graduation, Newfoundland and Labrador college graduates had paid off $1,500 in government student loan debt but still had the highest debt levels in the country at $13,900. On average, Alberta's college graduates were able to pay off $2,400 in government student loan debt (the second highest repayment amount after Ontario), leaving them with the second lowest debt levels in the country at $8,400.[106]

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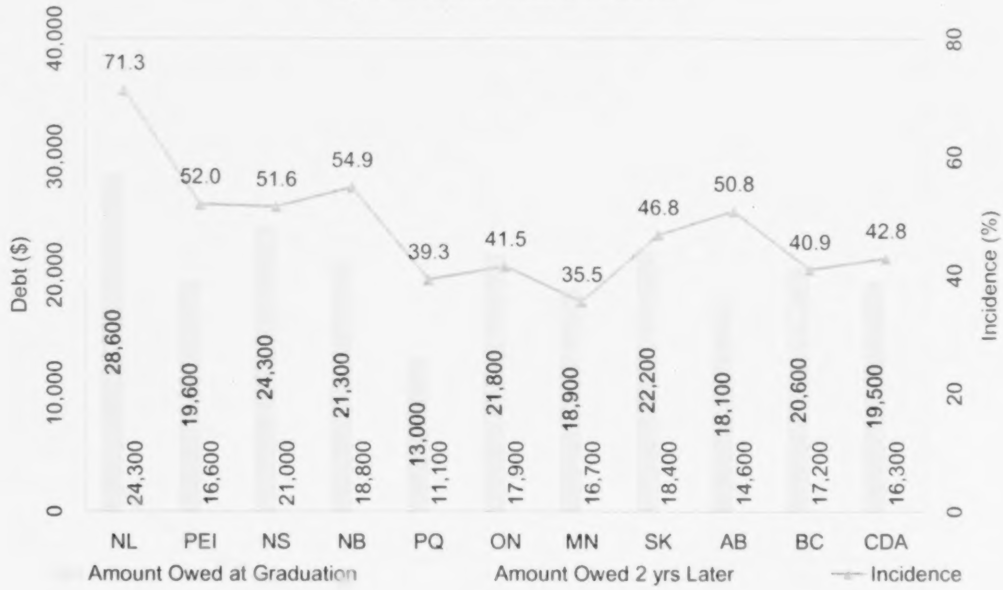
[106] Statistics Canada, special tabulation for Alberta Advanced Education.

4.8.2 Bachelor's Degree Graduates

Based on NGS data from the graduating class of 2000, 42.8% of bachelor's degree graduates across Canada reported having government student loan debt upon graduation. The incidence of government debt was highest for Newfoundland and Labrador at 71.3%, followed by New Brunswick (54.9%) and Prince Edward Island (52.0%). Alberta's incidence rate was 50.8%, fifth highest in the country and somewhat above the national average of 42.8%.

Government Debt for Bachelor's Degree Graduates by Province, Class of 2000



In terms of debt amounts upon graduation, Newfoundland and Labrador bachelor's degree graduates had the highest average government student loan debt at $28,600, followed by Nova Scotia ($24,300) and Saskatchewan ($22,200). At $20,600, Alberta's bachelor's degree graduates had the second lowest average government student loan debt in the country upon graduation (after Québec at $13,000).

Two years after graduation, Newfoundland and Labrador bachelor's degree graduates had paid off $4,300 in government student loan debt (the highest repayment amount in the country) but still had the highest debt levels at $24,300. On average, Alberta's bachelor's degree graduates were able to pay off $3,500 in government student loan debt (the third highest repayment amount), leaving them with the second lowest debt levels in the country at $14,600.[107]

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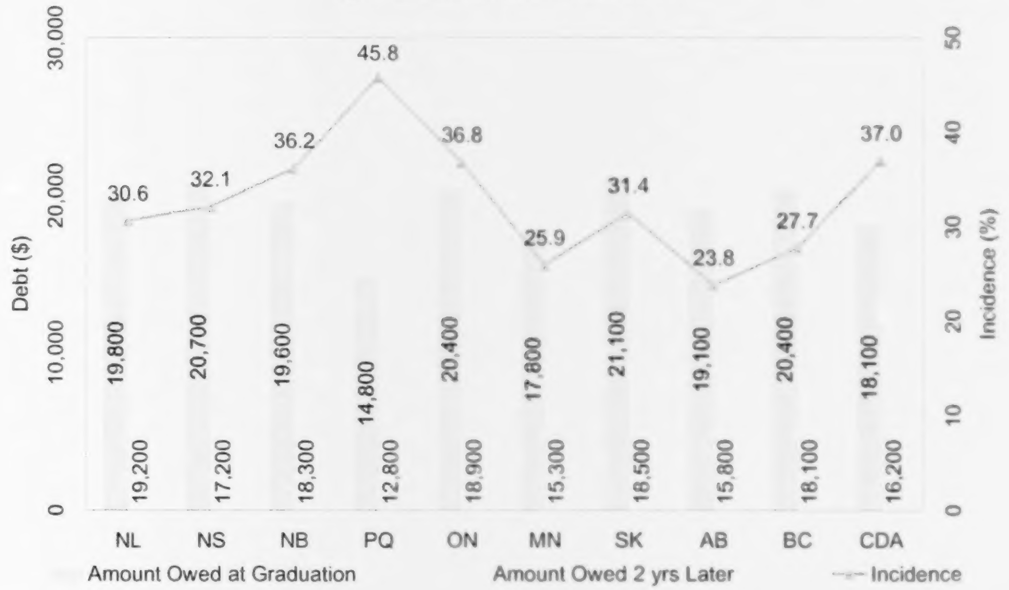
[107] Statistics Canada, special tabulation for Alberta Advanced Education.

4.8.3 Master's Degree Graduates

Based on NGS data from the graduating class of 2000, 37.0% of master's degree graduates across Canada reported having government student loan debt upon graduation (note that results were suppressed for Prince Edward Island due to a low number of survey responses). The incidence of government debt was highest for Québec master's degree graduates at 45.8%, followed by Ontario (36.8%) and New Brunswick (36.2%). Alberta's incidence rate of 23.8% was the lowest in the country and well below the national average of 37.0%.

Government Debt for Master's Degree Graduates by Province, Class of 2000

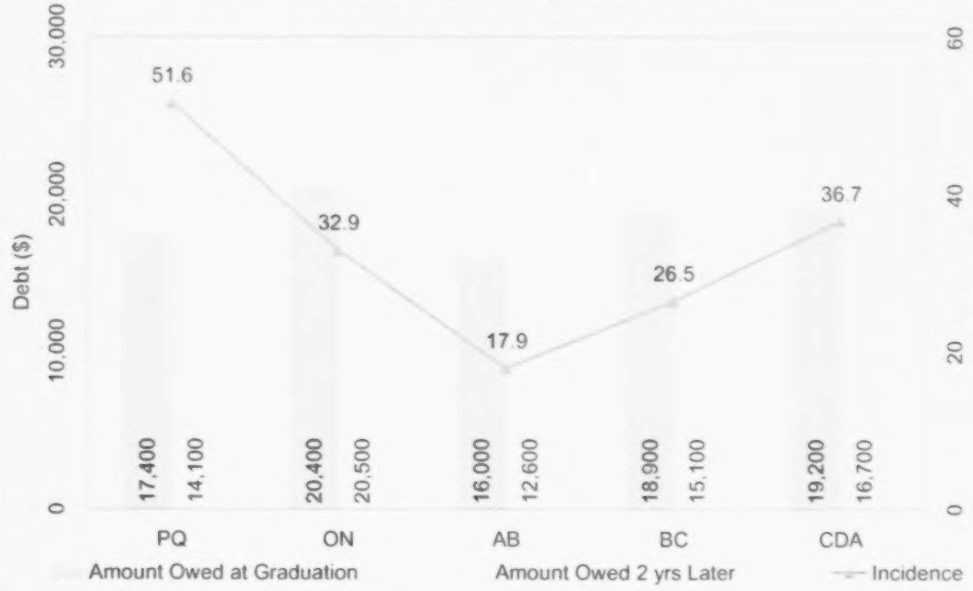


In terms of debt amounts upon graduation, Saskatchewan master's degree graduates had the highest average government student loan debt at $21,100, followed by Nova Scotia ($20,700) and Ontario ($20,400). At $19,100, Alberta's master's degree graduates had the third lowest average government student loan debt in the country upon graduation (after Québec and Manitoba).

Two years after graduation, Newfoundland and Labrador master's degree graduates had the highest debt levels at $19,200 (a result of the lowest repayment amount in the country), followed closely by Ontario ($18,900) and Saskatchewan ($18,500). On average, Alberta's master's degree graduates were able to pay off $3,300 in government student loan debt (the second highest repayment amount in the country), leaving them with the third lowest debt levels in the country at $15,800 (after Québec and Manitoba).[108]

4.8.4 Earned Doctorate Graduates

Based on NGS data from the graduating class of 2000, 36.7% of earned doctorate graduates across Canada reported having government student loan debt upon graduation (note that only Québec, Ontario, Alberta and British Columbia had enough responses to generate releasable data on earned doctorate graduates). The incidence of government debt was highest for Québec at 51.6%, while Alberta's incidence rate of 17.9% was the lowest in the country.



Government Debt for Earned Doctorate Graduates by Province, Class of 2000

In terms of debt amounts upon graduation, Ontario's earned doctorate graduates had the highest average government student loan debt at $20,400, while Alberta's earned doctorates has the lowest government student loan debt levels in the country at $16,000. Two years after graduation, Alberta's earned doctorate graduates continued to have the lowest government student loan debt levels in the country at $12,600, followed by Québec at $14,100.[109]

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[108] Statistics Canada, special tabulation for Alberta Advanced Education.

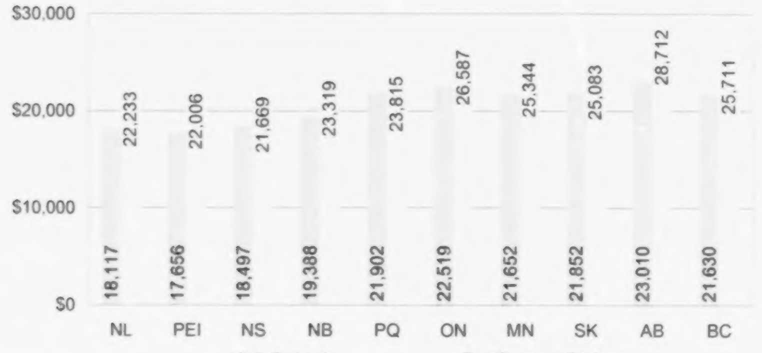
[109] Statistics Canada, special tabulation for Alberta Advanced Education.

4.9 Adjusted Earnings Across Canada By Educational Attainment

As discussed earlier (refer to section 1.2) higher levels of educational attainment are associated with higher levels of earnings. This is particularly true for graduates of Alberta's advanced education system, where the province's strong economy provides residents with among the highest gross earnings in the country. Additionally once Alberta's lower cost of living and lower tax regime are considered, residents have the highest adjusted earnings in Canada across all levels of educational attainment.

Based on Statistics Canada 2002 Labour Force Survey Data, average gross annual earnings were adjusted by Alberta Finance for cost of living and tax differences among provinces. Albertans with high school completion as their highest level of educational attainment had an adjusted annual average salary of $23,010 in 2002, the highest in the country and just ahead of Ontario at $22,519.[110] As expected, Albertans holding certificates or diplomas had higher salaries than those with high school completion, earning on average $28,712 in 2002. Again, this level of earnings was the highest in the country, and well ahead of the next highest province, Ontario at $26,587.

Average Adjusted Salary by Level of Educational Attainment by Province, High School and Certificate or Diploma Credentials, 2002



For Albertans with bachelor's and graduate degrees, the trend towards higher average annual salaries is maintained. Albertans with a bachelor's degree as their highest level of educational attainment had adjusted annual earnings of $33,853 in 2002 – once again the highest in the country and well ahead of the second ranked province (Ontario at $32,159).

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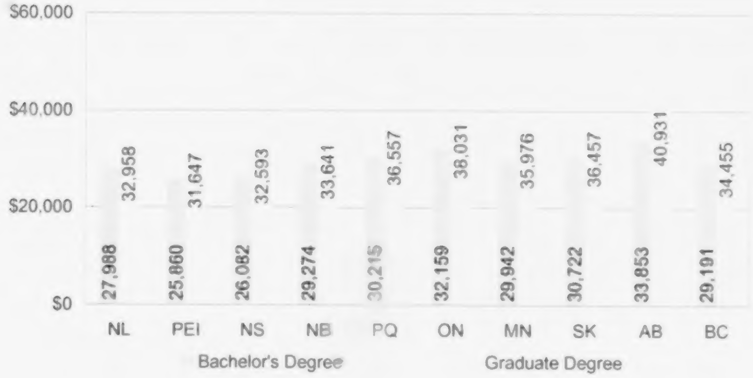
[110] http://www.advancededucation.gov.ab.ca/news/2003/September/nr-PostSecPays.asp.

Similarly, for Albertans holding graduate degrees, the average adjusted salary in 2002 was $40,931, almost $3,000 higher than the next closest province (Ontario again, at $38,031).[111]

Average Adjusted Salary by Level of Educational Attainment by Province, Bachelor's and Graduate Degree Credentials, 2002



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[111] http://www.advancededucation.gov.ab.ca/news/2003/September/nr-PostSecPays.asp.

5 INNOVATION

Research conducted in Alberta's advanced education system directly impacts the social and economic development of the province and provides opportunities to develop human resource capacity through the advanced training and skills development that occurs within an advanced education setting. Furthermore, research and innovation adds to existing information and creates new knowledge through the advancement of new ideas and new ways of thinking.

Innovation also leads to new products and services, which create employment opportunities in spin-off companies and even new industries. Through this generation of new knowledge and ideas, commercialization and transfer of technology to the marketplace, research acts as a direct link between Alberta's advanced education system and the province's economy. Further, with the shift to a global, knowledge-based economy, research and generation of new knowledge and ideas will play an increasingly important role in linking Alberta to both international research communities and international markets.

5.1 Alberta's Research Institutions

Successful research environments require the interaction of three main components: physical infrastructure, human resources, and a culture of innovation. While applied research is conducted at several colleges and technical institutes within the province, only public universities are mandated to undertake basic or fundamental research.

Both the Universities of Alberta and Calgary are full-service, research-intensive universities that focus on a broad range of scientific, technological, and socially based research. Medical schools and teaching hospitals at these institutions provide opportunities to conduct a wide range of health research activities – increasing their overall capacity to attract and retain high caliber faculty and research funding.

In addition to the Universities of Alberta and Calgary, The University of Lethbridge also has a strong research and innovation program that focuses on disciplines such as water resources, agricultural biotechnology, community and family studies, and computing and information technology. Athabasca University, as the province's principal distance delivery institution, has a research program aimed at distance delivery programming and e-learning.

5.2 Sponsored Research Revenue

Sponsored research revenue is a comprehensive measure of the amount of funding advanced education institutions can leverage from various sources to conduct sponsored research activity. Through the generation of sponsored research, it is important to ensure that institutions have the necessary resources to maintain the physical infrastructure (equipment), human resources and culture of innovation required to support a vigorous research, innovation and commercialization program.

In general, total sponsored research revenue is defined as all revenue received in support of research activity, less any research-related funds provided through institutions' ongoing operating grants. In Canada, federal and provincial granting agencies are the main providers of sponsored research revenue, although sponsored research funding is also provided by private organizations (often through research contracts with the institution), and is generated by the institution itself through endowments, investments, and donations.

5.2.1 Granting Councils in Canada

The main federal granting councils that award federal sponsored research funding include the Social Sciences and Humanities Research Council, the Natural Sciences and Engineering Research Council, the Canadian Institutes of Health Research, the Canadian Foundation for Innovation, and the Canada Research Chairs program.

These agencies operate as independent councils, awarding funding to individual researchers based on results of a peer-review process of research proposals. In addition to these councils, Health Canada also provides substantial sponsored research funding (over $37 million in 2002-03) to support of health-related research activity.[112]

5.2.2 Granting Agencies and Programs in Alberta

Within Alberta, there are a number of granting agencies and programs supporting research activity and enhancing research capacity. Some of these agencies and programs include:

- *Alberta Science Research Investments Program* (ASRIP). This program supports science and research initiatives, in terms of infrastructure and equipment, in areas of strategic importance to Alberta: energy, life sciences and information and communication technology. In 2003-04 ASRIP awarded a total of $23 million for seventeen projects.
- *Small Equipment Grants Program*. This program provides funding to retain key researchers in strategic areas and to purchase new research equipment. In 2004 $2.4 million was provided to support seventeen researchers (funds are provided through ASRIP).
- *Alberta Informatics Circle of Research Excellence* (iCORE). This program aims to attract and grow a critical mass of human resources in the area of information and communication technology (computer science, computer engineering, physics,

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[112] Statistics Canada and Canadian Association of University Business Officers, *Financial Information of Universities and Colleges 2002-2003*, 2003, p. 23.

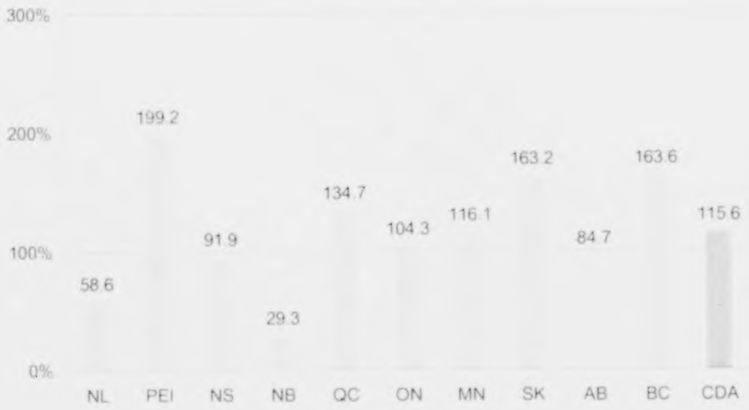
mathematics and other related disciplines). Alberta Innovation and Science currently commits $10 million annually to support iCORE programs.

- *Alberta Heritage Foundation for Medical Research* (AHFMR). AHFMR supports biomedical and health research and is the largest provincial source of sponsored research funding. In 2003-04, AHFMR provided approximately $42 million for grants and awards.
- *Alberta Ingenuity Fund*. The Alberta Ingenuity Fund supports science and engineering research in Alberta. In 2003-04, an estimated $12.2 million was committed towards grant and award programs.
- *Core University Research in Sustainable Energy* (COURSE). This program, which receives funding through the Alberta Energy Research Institute, supports university-based research into sustainable energy. In 2004, COURSE provided $1.6 million in funding to support seven projects.

5.2.3 Total Sponsored Research Revenue Across Canada

Based on Statistics Canada data prepared for the Canadian Association of University Business Officers (CAUBO), between 1997-98 and 2002-03 growth in total sponsored research revenue within Canada was exceptionally strong, increasing 115.6% nationally. Prince Edward Island had the most significant increase at 199.2%, followed by British Columbia (163.6%) and Saskatchewan (163.2%).[113] Alberta's increase of 84.7% was the fourth lowest in the country, below the national average of 115.6% (Table 26, Appendix C).

Percent Change in Sponsored Research Revenue by Province, 1997-98 to 2002-03



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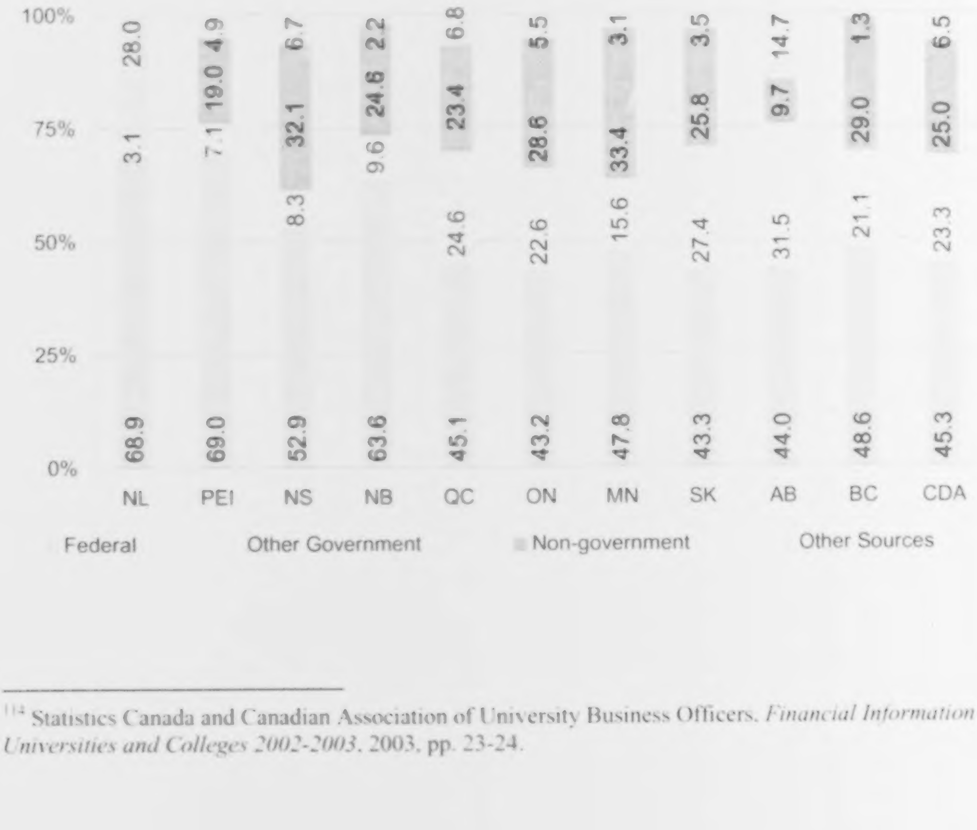
[113] Statistics Canada and Canadian Association of University Business Officers, *Financial Information of Universities and Colleges*, various years, Report 2.1a (consolidated entities).

By 2002-03, Alberta's advanced education institutions obtained a smaller proportion of their sponsored research revenues from federal sources than most other provinces. At 44.0%, this proportion was the third lowest in Canada after Ontario (43.2%) and Saskatchewan (43.3%). In contrast, Alberta's advanced education institutions obtained 31.5% of their sponsored research revenue from other government sources in 2002-03, by far the highest proportion in the country. These sources include funding provided by provincial agencies (such as AHFMR and the Ingenuity Fund within Alberta) as well as funding provided by municipal and foreign governments.

At 33.4%, Manitoba advanced education institutions were top ranked for their proportion of sponsored research revenues from non-government sources (these sources include sponsored research contracts with individuals, businesses and not-for-profit organizations), while Newfoundland and Labrador advanced education institutions were top ranked at 28.0% (with Alberta second) for their proportion of total sponsored research revenues from other sources (these sources include donations and revenues from endowments/other investments/ancillary enterprises).[114]

Sponsored Research Revenue by Source, as a Proportion of Total Sponsored Research Revenue, by Province, 2002-03



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[114] Statistics Canada and Canadian Association of University Business Officers. *Financial Information of Universities and Colleges 2002-2003*, 2003, pp. 23-24.

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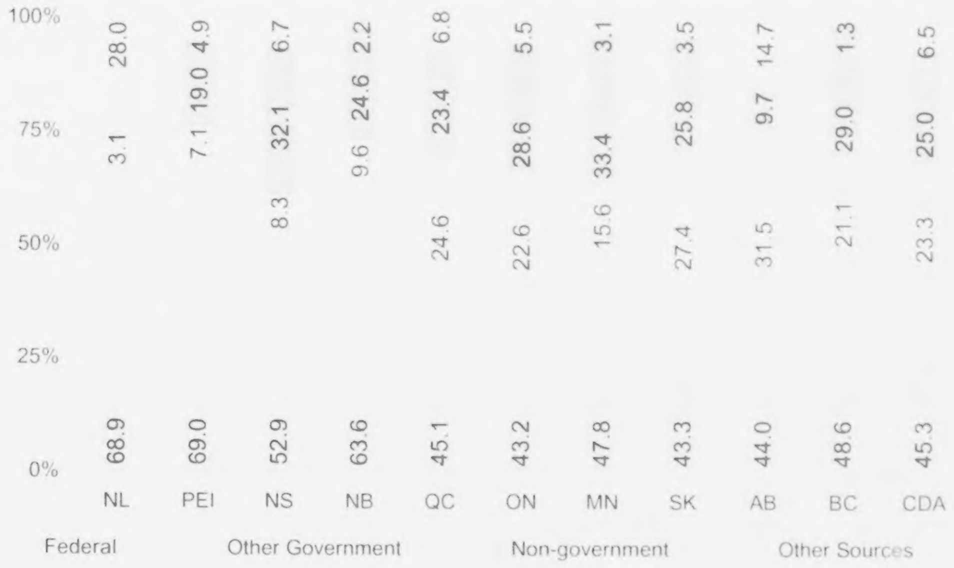

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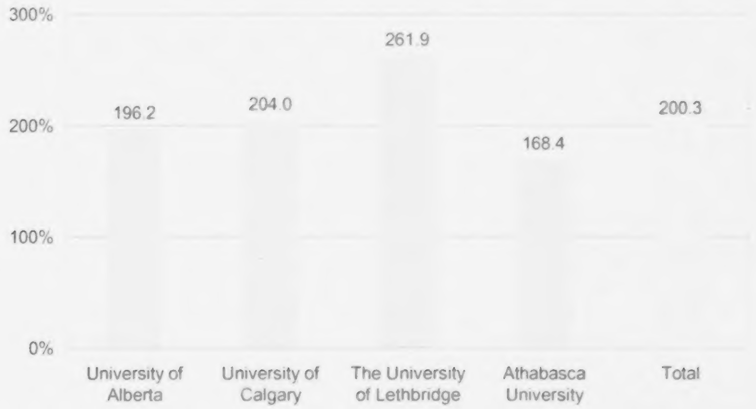
[114] Statistics Canada and Canadian Association of University Business Officers. *Financial Information of Universities and Colleges 2002-2003*. 2003. pp. 23-24.

5.2.4 *Total Sponsored Research Revenue in Alberta*

Provincial data collected by Alberta Innovation and Science confirm that Alberta's four universities have been highly successful in attracting sponsored research revenue (note that this data is not comparable to the CAUBO data discussed above). For the university sector as a whole, sponsored research revenue increased 200.3% between 1997-98 and 2003-04.[115]

Percent Change in Sponsored Research Revenue by University, 1997-98 to 2003-04



At 261.9%, The University of Lethbridge had the highest increase over this period, followed by the Universities of Calgary and Alberta at 204.0% and 196.2% respectively (Table 27, Appendix C). At 168.4%, Athabasca University also had a strong increase in sponsored research revenue over this time period.

By 2003-04, the Universities of Alberta and Calgary obtained the largest proportion of their total sponsored research revenue from federal sources (43.3% and 39.2% respectively) followed by provincial sources (36.7% and 30.2% respectively). Compared to the other institutions, at 15.8%, the University of Calgary obtained the highest proportion of sponsored research revenue from industry sources.

The University of Lethbridge obtained the majority of its sponsored research revenue from federal sources (64.0%) followed by provincial (23.9%) and other sources (10.7%). For all intents and purposes Athabasca University received 100% of its sponsored research revenue in 2003-04 from federal sources (note that Athabasca University did obtain very limited amounts of sponsored research revenue from provincial, industry and other sources in 2003-04).[116]

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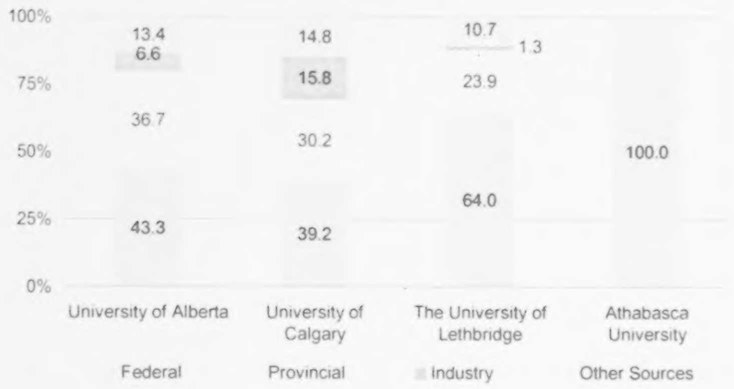
[115] Alberta Innovation and Science, *Research Funding at Alberta Universities*, various years, Table 1.

[116] Alberta Innovation and Science, *Research Funding at Alberta Universities, 2003-2004 Report*, DRAFT.

Sponsored Research Revenue by Source, as a Proportion of Total Sponsored Research Revenue, by University, 2003-04



As discussed earlier, the increase in sponsored research activity across Canada has been substantial, and has reached a point where revenues for sponsored research are close to matching if not exceeding (dollar for dollar) ongoing operating grants at Canada's larger, research-intensive universities. Within Alberta, based on 2003-04 data, for every dollar received in ongoing operating grants the University of Calgary receives 88 cents in sponsored research revenue, the University of Alberta receives 85 cents, while The University of Lethbridge and Athabasca University receive 15 and 4 cents respectively.[117]

5.2.5 Funding for the Indirect Costs of Sponsored Research

In general, sponsored research revenues provided by granting councils and agencies are provided on a project specific basis, and are meant to support the project's direct costs such as equipment and supplies purchases as well as salaries for research assistants. However, institutions incur indirect costs related to the support of sponsored research activity including administrative and library services as well as maintenance and operation of buildings and equipment.

Although there is growing concern among institutions over the indirect costs of sponsored research, these costs remain difficult to define and measure. Most estimates indicate that universities incur indirect costs approaching 40 cents for every dollar spent on sponsored research. With just under $4.3 billion in sponsored research revenue in 2002-03, indirect costs incurred by Canadian institutions are estimated at over $1.7 billion. To cover these expenditures institutions rely on other revenue sources including operating grants – which draw resources away from institutions' teaching function. In

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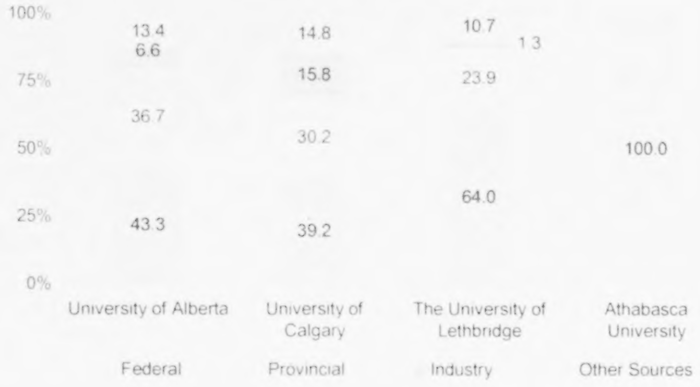
[117] Alberta Advanced Education, Financial Information Reporting System.

Sponsored Research Revenue by Source, as a Proportion of Total Sponsored Research Revenue, by University, 2003-04



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Although there is growing concern among institutions over the indirect costs of sponsored research, these costs remain difficult to define and measure. Most estimates indicate that universities incur indirect costs approaching 40 cents for every dollar spent on sponsored research. With just under $4.3 billion in sponsored research revenue in 2002-03, indirect costs incurred by Canadian institutions are estimated at over $1.7 billion. To cover these expenditures institutions rely on other revenue sources including operating grants – which draw resources away from institutions' teaching function. In addition, since the indirect costs of sponsored research are funded in other jurisdictions (including the United States, Australia and Great Britain), Canada's research institutions are at a competitive disadvantage.

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[117] Alberta Advanced Education, Financial Information Reporting System.

In 2001, the federal government announced funding of $200 million nation-wide to support the indirect costs of sponsored research. For the University of Alberta this program dispersed $11.9 million while the University of Calgary received $7.3 million. Funding the indirect costs of sponsored research is now an ongoing federal program administered through the Canada Research Chairs program, and in 2004-05 Alberta advanced education institutions will receive just over $22 million. Note that Ontario's Research Performance Fund is the only provincial granting agency that provides funding support for the indirect costs of sponsored research. This fund provides $32 million to Ontario advanced education institutions each year, to support the indirect costs of provincially funded sponsored research activities.

5.3 Expenditures on Research and Development

Expenditures on research and development measure research and development expenditure activity at advanced education institutions and at other organizations (including the federal government and the private business sector). Research expenditures within Canada's advanced education system are classified by Statistics Canada as Higher Education Research and Development (HERD) while total research expenditures (by all sectors, including government and the private business sector) are classified as Gross Expenditures on Research and Development (GERD). Note that GERD includes foreign funds used to support research within Canada, but excludes Canadian funds spent outside the country.

5.3.1 GERD and HERD Across Canada

Between 1997 and 2001, GERD increased 51.1% across Canada, with Prince Edward Island registering the highest increase in the country at 118.8% (Table 28, Appendix C). At 44.0%, Alberta's increase in GERD over this time period was the sixth highest in the country, and well below the increase in Manitoba (69.7%) and British Columbia (61.8%).[118]

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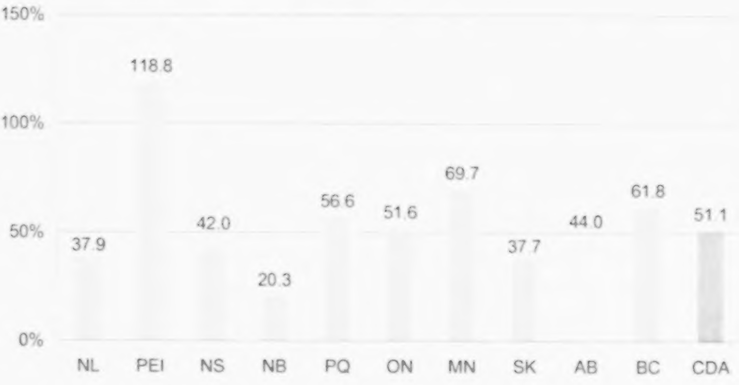
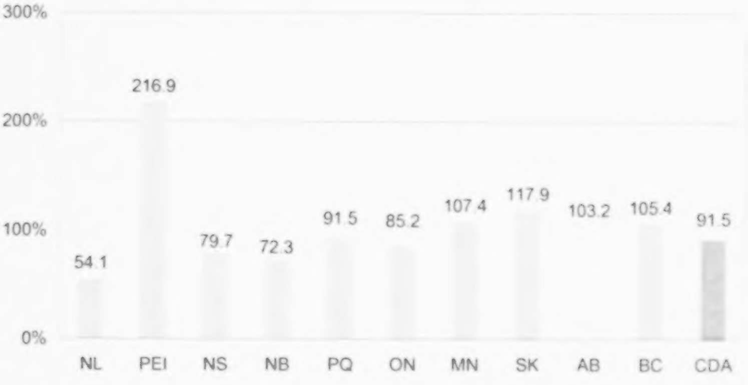
[118] Statistics Canada, *CANSIM*, Table 358-0001.

Percent Change in Gross Expenditures on Research and Development by Province, 1997 to 2001



Similarly, Prince Edward Island also had the highest increase in HERD between 1997-98 and 2002-03 at 216.9% (Table 29, Appendix C). At 103.2%, Alberta's increase in HERD was the fifth highest in Canada and well above the national average of 91.5% between 1997-98 and 2002-03.[119]

Percent Change in Higher Education Research and Development Expenditures by Province, 1997-98 to 2002-03



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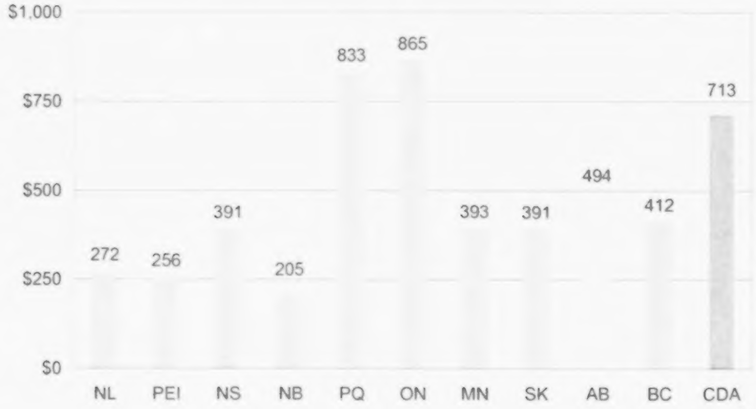
[119] Statistics Canada, *Estimation of Research and Development Expenditures in the Higher Education Sector, 2002-2003*, 2004, Catalogue 88F0006XIE no. 019, p. 15.

On a per capita basis, at $494 in 2001, Alberta's per capita GERD was the third highest in Canada after Ontario ($865) and Québec ($833).[120] The national average of $713 was well above most provinces due to the large amount of research and development that occurs in Ontario and Québec. These provinces, which support substantial manufacturing activity, have particularly strong research and development expenditures associated with their business sectors.

Per Capita Gross Expenditures on Research and Development by Province, 2001



Specifically, based on 2001 data, the majority of GERD completed within Ontario and Québec was performed by the business sector (70.9% and 63.3% respectively). This was in sharp contrast to Prince Edward Island where the largest proportion of GERD was completed by the federal government (45.7%) followed by the higher education sector (42.9%). Within Alberta, the largest proportion of GERD was completed by the higher education sector at 44.0% followed by the business sector at 40.6%.[121]

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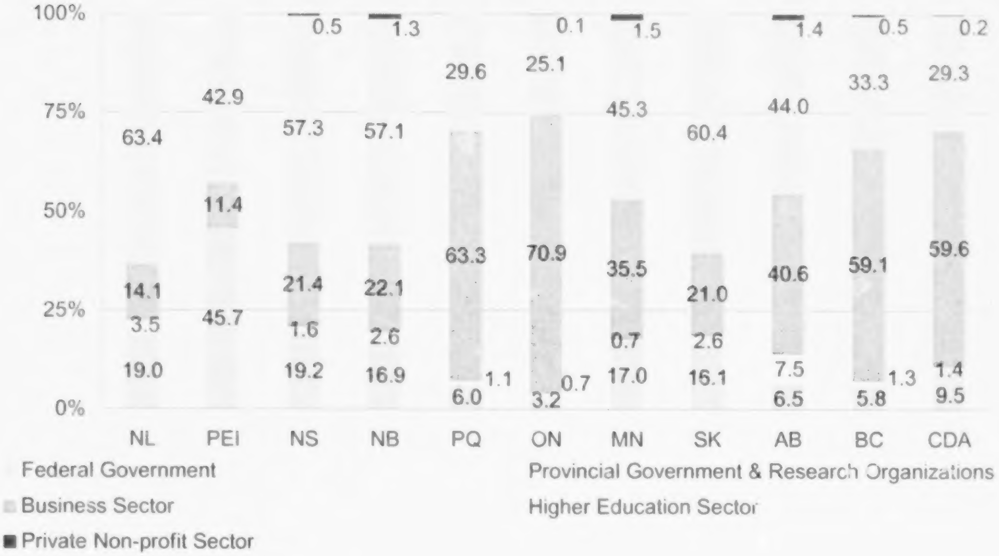
[120] Statistics Canada, *CANSIM*, Table 358-0001; Statistics Canada, *CANSIM*, Table 051-0001.

[121] Statistics Canada, *CANSIM*, Table 358-0001.

GERD by Performing Sector as a Proportion of Total GERD by Province, 2001



5.3.2 GERD to GDP Across Canada

GERD expressed as a percentage of total Gross Domestic Product (GDP) is an internationally recognized measure of the level of research and development activity relative to a jurisdictions' economic output. Between 1997 and 2001, Canada's GERD to GDP increased by 20.4%, with Prince Edward Island registering the most significant increase at 76.3% (Table 30, Appendix C). Alberta's 2.0% increase in GERD to GDP was the second lowest change in the country (after New Brunswick's 2.4% decrease over this time period).[122]

Alberta's lower showing on this measure is a product of its relatively low increase in GERD between 1997 and 2001 (44.0%) and its very significant growth in GDP. Specifically, Alberta's growth of 41.2% in GDP from 1997 to 2001 was the highest in the country, and well above that of other provinces such as Ontario (26.0%), Québec (23.4%) and British Columbia (15.4%).[123]

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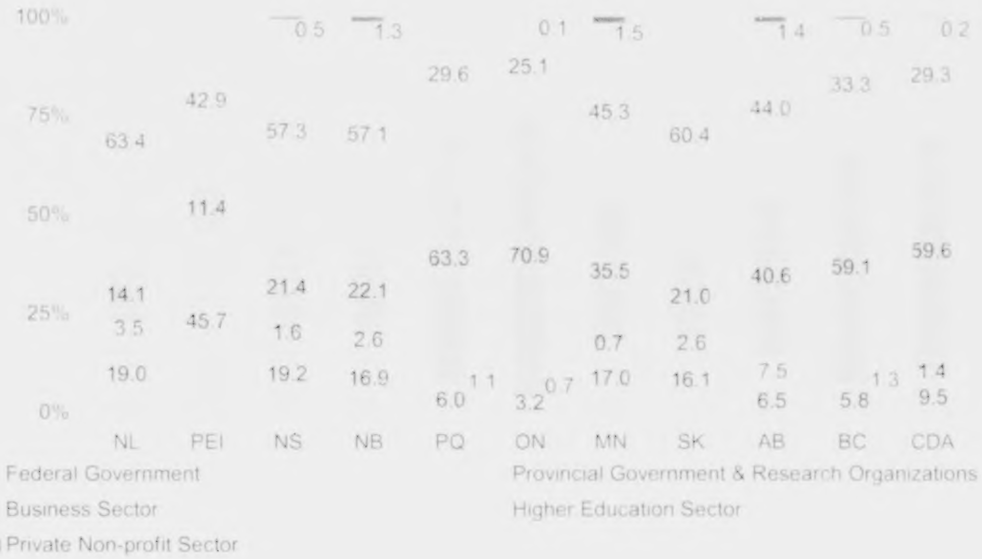
[122] Statistics Canada, *CANSIM*, Table 358-0001; Statistics Canada, *CANSIM*, Table 384-0001.

[123] Statistics Canada, *CANSIM*, Table 384-0001.

GERD by Performing Sector as a Proportion of Total GERD by Province, 2001



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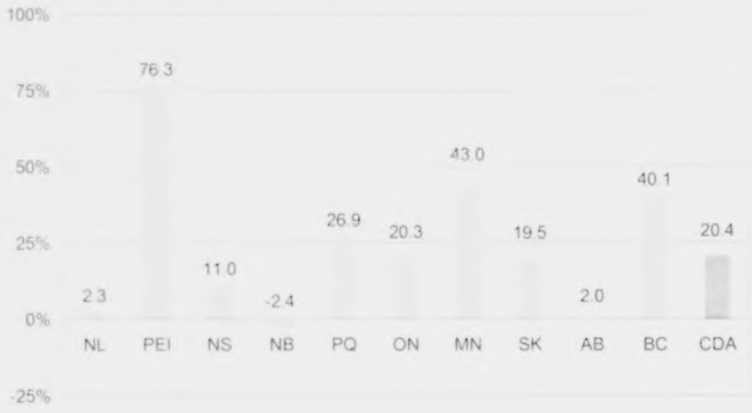
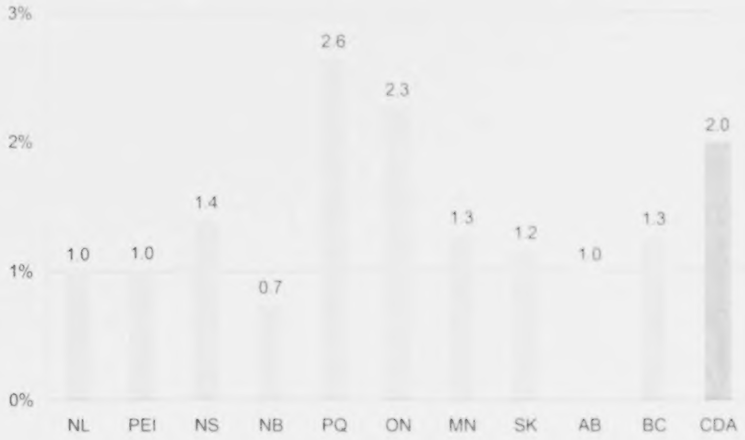
[122] Statistics Canada, *CANSIM*, Table 358-0001; Statistics Canada, *CANSIM*, Table 384-0001.
[123] Statistics Canada, *CANSIM*, Table 384-0001.

Percent Change in Gerd to GDP by Province, 1997 to 2001



By 2001, Alberta's GERD to GDP was 1.0%, among the lowest in the country and well below the national average of 2.0%. At 2.6%, Québec had the highest GERD to GDP in Canada, followed by Ontario (2.3%) and Nova Scotia (1.4%). Again, Alberta's high GDP contributes to the province's lower showing on this measure – also exacerbated by weak research and development expenditures within Alberta's business sector.

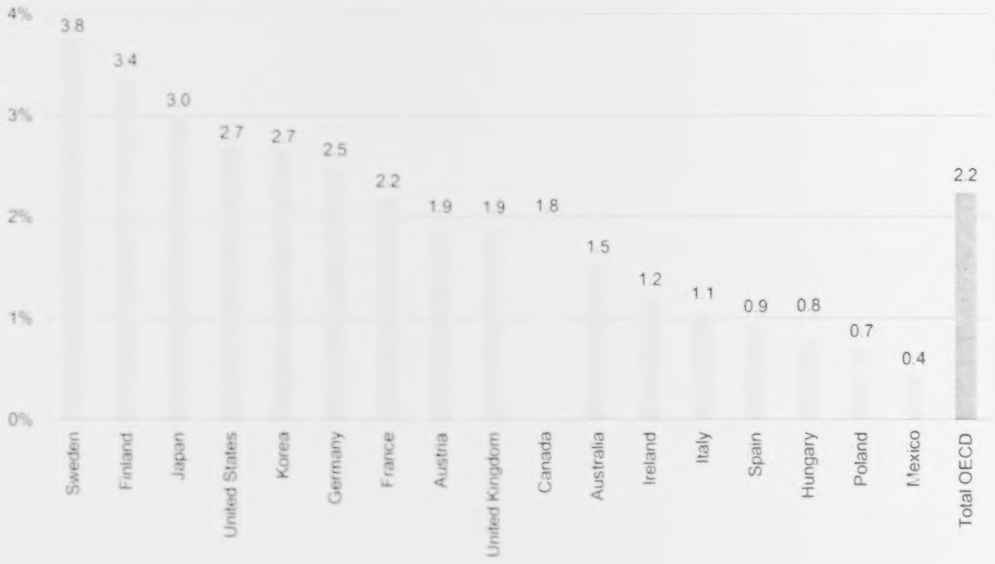
GERD as a Percentage of GDP by Province, 2001



5.3.3 *GERD to GDP Internationally*

In 2000, among select OECD countries, Sweden had the highest GERD to GDP amount at 3.8% followed by Finland at 3.4% and Japan at 3.0%. At 1.8%, Canada's GERD to GDP level was below the OECD average of 2.2%, and well below knowledge economy competitors such as the United States (2.7%) and Germany (2.5%).[124] In 2001, federal, provincial and territorial governments agreed on a goal to increase Canada's GERD to GDP level to fifth highest among OECD countries by 2010.

GERD as a Percentage of GDP by Select OECD Countries, 2000



5.3.4 *Research and Development Internationally*

Relative to other G7 countries (France, Germany, Italy, Japan, United Kingdom, United States) and to select top-ranking OECD countries (Finland, Korea and Sweden), Canada's advanced education sector is a major contributor to research and development activity. Specifically, in 2000, Canada's higher education sector accounted for 29.5% of total research and development – the second highest proportional contribution after the higher education sector in Italy (31.0%).

Italy also had the highest proportion (relative to other countries) of total research and development completed by government at 18.9%, followed by France (17.3%) and Korea (13.3%). Not surprisingly, at 75.2% the United States' business sector performed the majority of research and development within that country – this proportion was the highest attributable to the business sector among all countries. However, at 75.1%, Sweden was close behind, followed by Korea at 74.0%. Marginal levels of research and development were performed by the private non-profit sector across all G7 and top OECD countries.[125]

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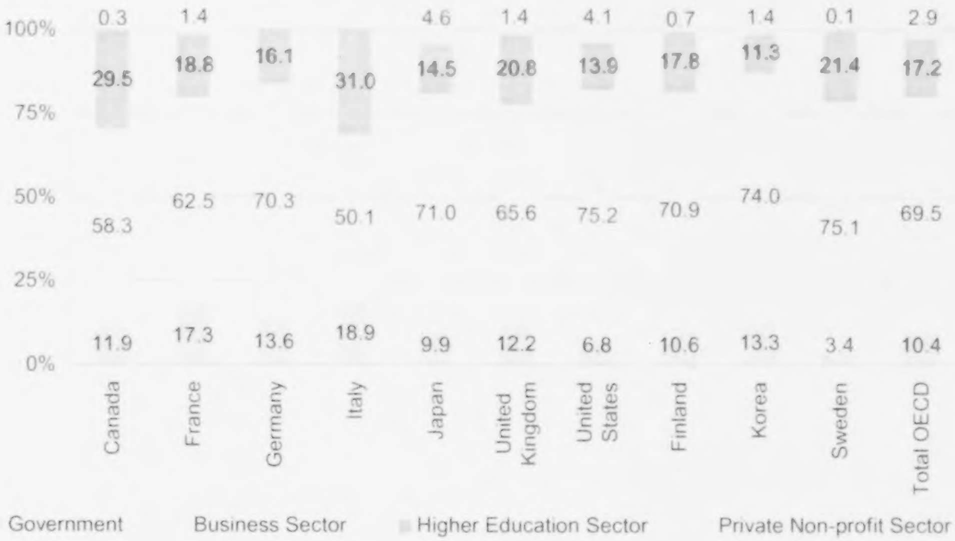
[124] Statistics Canada and Council of Ministers of Education, Canada. *Education Indicators in Canada: Report of the Pan-Canadian Education Indicators Program 2003*, 2003, Catalogue 81582XPE, p. 361.

Research and Development by Performing Sector as a Proportion of Total Research and Development by Select OECD Countries, 2000



5.4 Commercialization

Commercialization, or technology transfer, is an important process that involves the transfer of research ideas and products into the marketplace. Leveraging research outcomes to create new ongoing revenues gives Alberta universities another funding source from which to strengthen their research and innovation programs. Additionally, the commercialization of research outcomes promotes Alberta's research capacity internationally, helping the province compete in the global, knowledge-based economy.

Within Alberta, the commercialization of advanced education research has become an important source of revenue for the province's two research-intensive universities. Specifically, since 1963, research completed at the University of Alberta has supported the creation of 76 start-up companies, with 83% of these still active in 2001. The

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[125] Statistics Canada and Council of Ministers of Education, Canada, *Education Indicators in Canada: Report of the Pan-Canadian Education Indicators Program 2003*, 2003, Catalogue 81582XPE, p. 363.

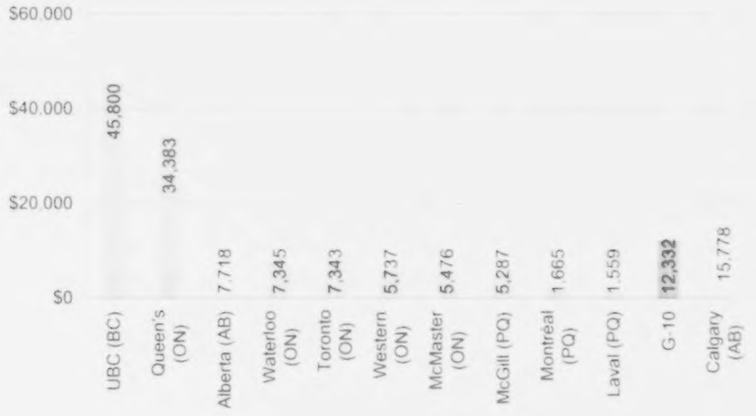
University of Alberta has retained equity in 36 of these companies, with an estimated value of $45 million. In 2001-02, the University of Alberta licensed 25 new technologies, received $4.9 million (US) in licensing revenues, and formed 8 start-up companies. In 2001-02, the University of Calgary reported 135 disclosures of new inventions and created 3 start-up companies. Additionally, the university had 13 patents issued and generated $1.9 million (US) in licensing revenue.

Alberta's research universities are acknowledged as leading research institutions within Canada, and this reputation tends to be confirmed through several commercialization-related indicators (license revenue, invention disclosures, patents, and start-up companies) that are used across Canada and internationally to measure university research output.

5.4.1 License Revenues

Based on 2002 data from the Association of University Technology Managers (AUTM), at $7,718, the University of Alberta had the third highest license revenues (per $1 million in sponsored research expenditures) of the G-10 universities (Canada's top ten, research-intensive universities). Although the University of Alberta's license revenues were lower than the G-10 average of $12,332, this average was skewed by substantial license revenues from two institutions (UBC and Queen's). The University of Calgary (not a G-10 institution) had license revenues of $15,778 in 2002, well above the G-10 average.[126]

License Revenue Received by Institution, 2002 (per $1 million in research expenditures)



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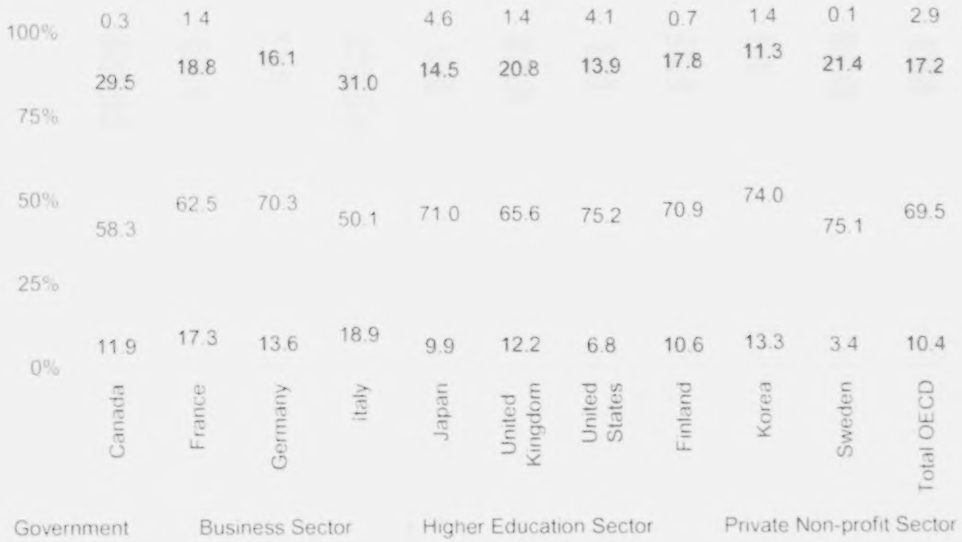
[126] AUTM, http://www.sfu.ca/vpresearch/CFITechTrf2003FY2002/cfi02tab1.pdf.

majority of research and development within that country – this proportion was the highest attributable to the business sector among all countries. However, at 75.1%, Sweden was close behind, followed by Korea at 74.0%. Marginal levels of research and development were performed by the private non-profit sector across all G7 and top OECD countries.[125]

Research and Development by Performing Sector as a Proportion of Total Research and Development by Select OECD Countries, 2000



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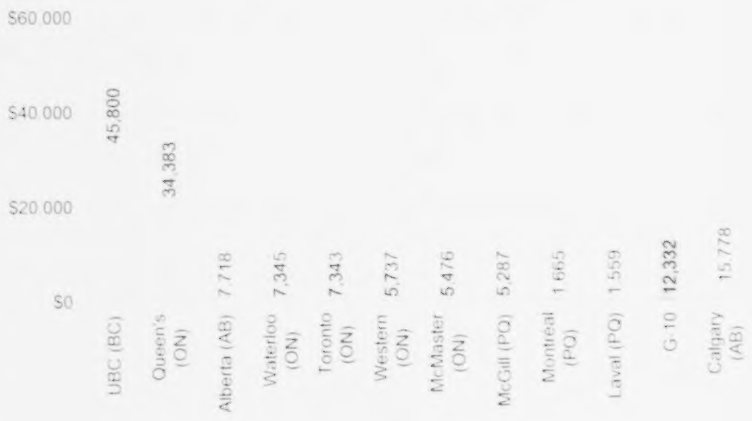

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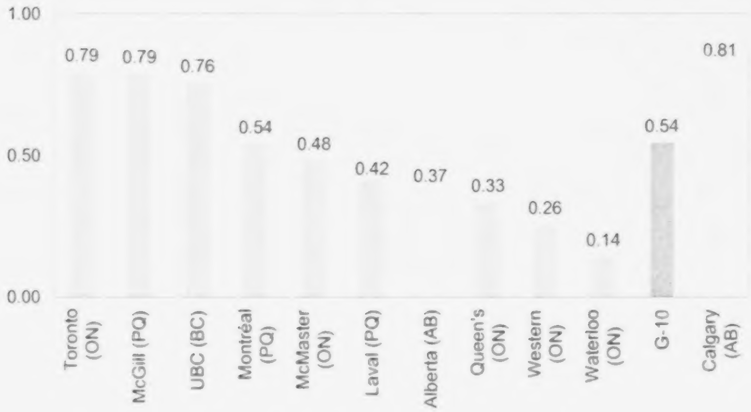
[126] AUTM, http://www.sfu.ca/vpresearch/CFITechTrf2003FY2002/cfi02tab1.pdf

5.4.2 Invention Disclosures

Based on 2002 AUTM data, the University of Alberta had among the lowest inventions disclosures of the G-10 universities at 0.37 (per $1 million in sponsored research expenditures). The University of Toronto and McGill University had the highest invention disclosures at 0.79 (per $1 million in sponsored research expenditures). Similar to the license revenues measure, the University of Calgary's invention disclosures (0.81) were well above the G-10 average of 0.54.

Invention Disclosures by Institution, 2002
(per $1 million in research expenditures)



5.4.3 US Patents Issued

Based on 2002 AUTM data, at 0.103, the University of Alberta had the third highest number of US patents issued (per $1 million in sponsored research expenditures) of the G-10 universities, behind Queen's University (0.210) and UBC (0.175). Once again, at 0.128, the University of Calgary had a higher level of US patents issued than both the University of Alberta and the G-10 average (0.097).[127]

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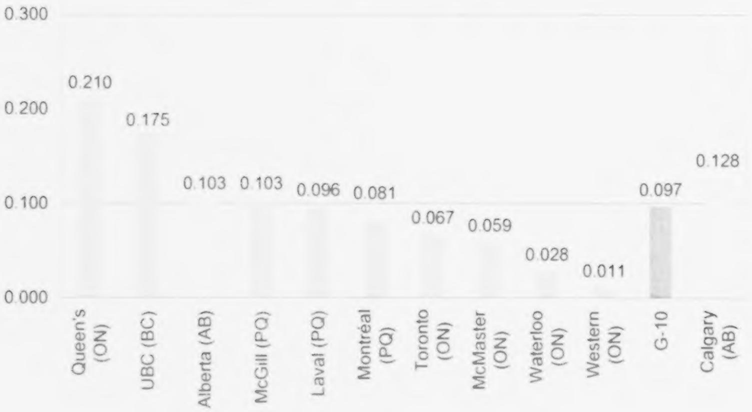
[127] AUTM, http://www.sfu.ca/vpresearch/CFITechTrf2003FY2002/cfi02tab1.pdf.

US Patents Issued by Institution, 2002
(per $1 million in research expenditures)

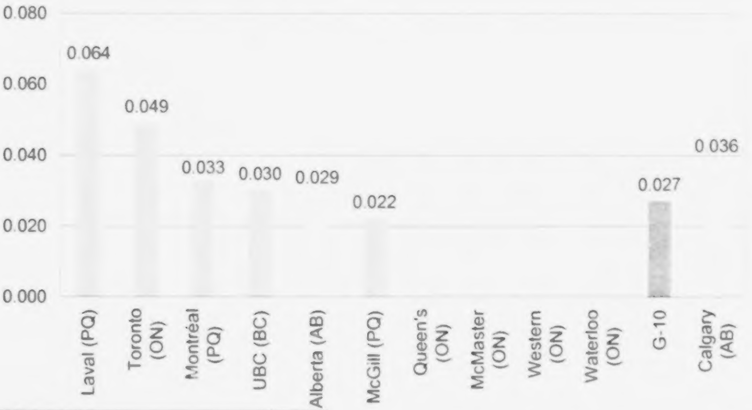


5.4.4 Start-up Companies Formed

Based on 2002 AUTM data, at 0.029, the University of Alberta formed the fifth highest number of start-up companies (per $1 million in sponsored research expenditures) within the G-10 universities. Note that Queens, McMaster, Western and Waterloo Universities did not form any start-up companies in 2002.

At 0.036, The University of Calgary formed more start-up companies in 2002 (per $1 million in sponsored research expenditures) than the University of Alberta, and was once again well above the G-10 average of 0.027.[128]

Start-up Companies Formed by Institution, 2002
(per $1 million in research expenditures)



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[128] AUTM, http://www.sfu.ca/vpresearch/CFITechTrf2003FY2002/cfi02tab1.pdf.

APPENDIX A – ALBERTA'S ADVANCED EDUCATION SYSTEM

Alberta's advanced education system is comprised of public board-governed institutions, community consortia, private providers and community-based organizations – all offering a broad range of credit and non-credit programs to learners throughout the province and beyond. In addition, numerous boards and councils support the system by providing coordination, planning and policy advice to Alberta Advanced Education and the Minister.

Public Board-governed Institutions

There are twenty-one public, board-governed institutions in Alberta, consisting of four universities, fourteen colleges, two technical institutes and the Banff Centre for Continuing Education. Prior to 1997, the four campuses of Alberta Vocational College operated under jurisdiction of the former Ministry of Advanced Education and Career Development. These campuses became public, board-governed institutions in 1997 and renamed themselves Bow Valley, NorQuest, Portage and Northern Lakes Colleges. All of Alberta's public, board-governed institutions operate under authority of the *Post-Secondary Learning Act*.

Alberta's public, board-governed institutions offer a variety of credit learning opportunities including skills training, trade certificate, certificate, diploma, applied degree, and degree programs. Universities offer the vast majority of degree programs whereas colleges and technical institutes generally focus on applied degree, diploma, trade certificate and certificate programs. A range of non-credit courses is also offered. However, unlike credit programs, non-credit courses and programs are funded primarily through student fees and do not require program approval from the Minister of Advanced Education.

Alberta's public, board-governed institutions receive grants from Alberta Advanced Education to support the delivery of credit instruction. Other provincial departments provide funds in support of specific activities such as infrastructure renewal and new construction, sponsored research, and select program delivery (such as preparatory and basic upgrading). In addition to these provincial funds, the public board-governed institutions obtain revenues through:

- tuition and other student fees (levied for both credit and non-credit activity);
- federal and private funding for sponsored research (primarily a university activity);
- ancillary activities (such as food and parking services); and
- donations.

Tuition and other student fees for most credit programs at public, board-governed institutions are regulated by Alberta's post-secondary tuition fee policy. The vast majority of credit programming is regulated with the exception of apprenticeship programs (regulated by Apprenticeship and Industry Training Division's tuition fee policy), institutions' entrepreneurial activities (third party contracts and off campus activity), and distance delivery education (for non-Alberta students only – Alberta students are regulated).

The post-secondary tuition fee policy applies to all public, board-governed institutions with the exception of the Banff Centre for Continuing Education, where the majority of learning activity is non-credit. Under this policy, annual increases in tuition and other student fees are restricted based on institutions' position relative to a 30% fee threshold. Institutions whose revenues from tuition and other student fees are equal to or below 30% of net operating expenditures (expenses for the delivery of credit instruction) can increase fees to a greater extent each year than institutions above the 30% threshold. The Apprenticeship and Industry Training tuition fee policy sets the maximum fee amount for apprenticeship students enrolled in the technical training component (taken at a college or technical institute) of their studies.

To ensure financial need is not a barrier to participation by interested and able students, Alberta Advanced Education has a comprehensive student financial assistance program. Students enrolled in designated programs (at both public and private institutions) may be eligible for student financial assistance depending on their situation. Financial assistance can be in the form of loans, grants, and scholarships (or a combination of these three).

Community Consortia

In addition to the twenty-one public, board governed institutions, Alberta's public advanced education system includes community consortia. Community consortia coordinate the delivery of credit learning opportunities to learners in communities not directly served by an advanced education institution. There are four community consortia in Alberta:

- Big Country Educational Consortium (Drumheller/Stettler region);
- Chinook Educational Consortium (Pincher Creek/Crowsnest Pass region);
- Pembina Educational Consortium (Drayton Valley/Whitecourt region); and
- Yellowhead Region Educational Consortium (Edson/Jasper region).

The consortia work to identify a community's learning interests and then match these interests with the teaching capabilities of public board-governed institutions. Provincial grants to support program, capital, and administrative needs are provided through Alberta Advanced Education's Community Consortium Program Grant. Consortia also pursue additional funding opportunities through other Alberta Advanced Education programs, ministries, governments, and agencies.

Private Providers

Alberta's advanced education system includes both for-profit and not-for-profit private providers. Much like the public, board-governed institutions, Alberta's private providers offer a range of credit and non-credit programming.

There are currently eight private providers authorized to offer degree programs in select disciplines such as arts, science and education. Seven of these providers operate on a not-for-profit basis (the private university colleges) while the eighth provides advanced education learning opportunities as a service for profit (DeVry Institute of Technology). Based on an historical agreement, the seven private university colleges receive ongoing operating grants from Alberta Advanced Education. This funding arrangement was part of the Alberta government's overall strategy to expand degree access to meet the needs of a rapidly growing population, growing in response to both inter-provincial mobility and the baby boom population. These seven institutions, combined with the public board governed institutions, are Alberta's publicly funded post-secondary institutions.

In addition to private providers with degree granting status, Alberta's advanced education system includes other private providers that offer non-regulated (non-credit) programs. Some providers are affiliated with Alberta public post-secondary institutions, colleges in the United States, and Canadian or American bible college/theological schools or associations. These providers do not receive operating grants from Alberta Advanced Education. However, students enrolled in designated programs may be eligible for student financial assistance depending on their financial situation.

There are also more than 140 private institutions offering licensed vocational programs under authority of the *Private Vocational Schools Act*. These programs are vocation specific, generally less than one-year in duration, and are created to respond to current labour market demands. The *Private Vocational Schools Act* requires schools to pay application and licensing fees and to post security to protect tuition paid by students. Schools are also required to report annually on graduation and job placement outcomes for each student in each licensed program. Like most other private providers (with the exception of the four private university colleges receiving limited public funding), vocational schools do not receive operating grants from Alberta Advanced Education. However, students enrolled in designated programs may be eligible for financial assistance depending on their situation.

Non-Resident Degree Granting Institutions

There are currently eleven degree-granting institutions (private and public) from outside the province that have permission from the Minister to offer specific degree programs in Alberta. Degree program proposals submitted by non-resident degree granting institutions are reviewed by the Campus Alberta Quality Council (see below).

Community-based Providers

Alberta Advanced Education, through the Community Programs branch, supports a range of non-profit voluntary organizations that provide part-time, non-credit learning opportunities with an emphasis on adults with barriers to accessing learning.

Support is provided through grants to 83 Community Adult Learning Councils, 73 volunteer tutor adult literacy programs and over 40 family literacy programs – all three provide direct programming to adults. Additionally, grants are provided to three support organizations (the Community Learning Network, Literacy Alberta and the Centre for Family Literacy) to provide professional development. Further funding is provided for development and distribution of resources such as English Express, a newspaper for adults learning to read English.

Community Adult Learning Councils provide part-time programming focusing on English as a Second Language, adult basic literacy, employability enhancement and other community-specific needs. The volunteer tutor programs match adults who want to improve their basic literacy skills with a volunteer tutor. Family literacy programs provide inter-generational programs for socio-economically disadvantaged families with children in the preschool years, in order to enhance the literacy skills of parents as well as their ability to encourage their children's early language and literacy development.

In 2005, Alberta Advanced Education began funding Aboriginal family literacy programs as part of its commitment to implementation of the First Nations Métis and Inuit Education Policy Framework.

Supporting Boards and Councils

A number of boards and councils provide coordination, planning and policy advice to the Minister of Advanced Education. These boards and councils include:

Alberta Council on Admissions and Transfers (ACAT)

ACAT provides advice and support to the Minister of Advanced Education on policies, guidelines and procedures to facilitate transfer agreements among Alberta's advanced education providers. ACAT encourages negotiations among institutions with the goal of expanding educational opportunities for Alberta students. ACAT also publishes the annual Alberta Transfer Guide to provide students with accurate information on admission and transfer opportunities. An on-line version of the Alberta Transfer Guide is available and updated regularly.

Alberta Apprenticeship and Industry Training Board (AAITB)

AAITB provides advice to the Minister of Advanced Education on labour market trends and needs, as well as training and certification requirements for trades and designated occupations. In addition to its advisory role, AAITB sets training and certification standards for trades and designated occupations, appoints members for various trades-related committees, develops regulations for the Minister's approval, and develops policies to recognize equivalent training programs.

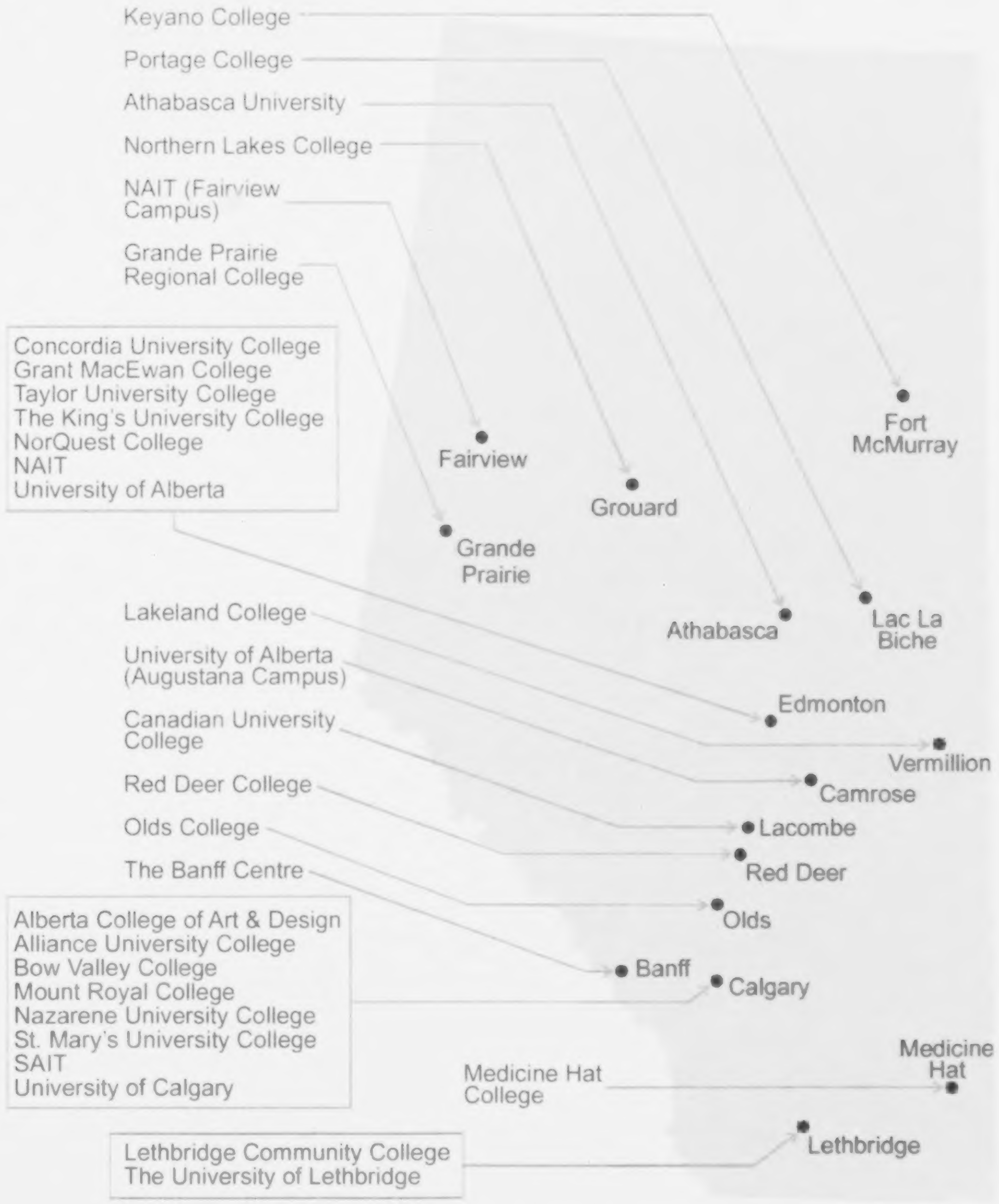
Campus Alberta Quality Council (CAQC)

The eleven member CAQC was established upon proclamation of the *Post-Secondary Learning Act* in March 2004. The council reviews proposals from resident advanced education institutions (public and private) interested in offering new degree programs. The council's principle role is to ensure program quality – the Minister of Advanced Education will retain a system coordinating role.

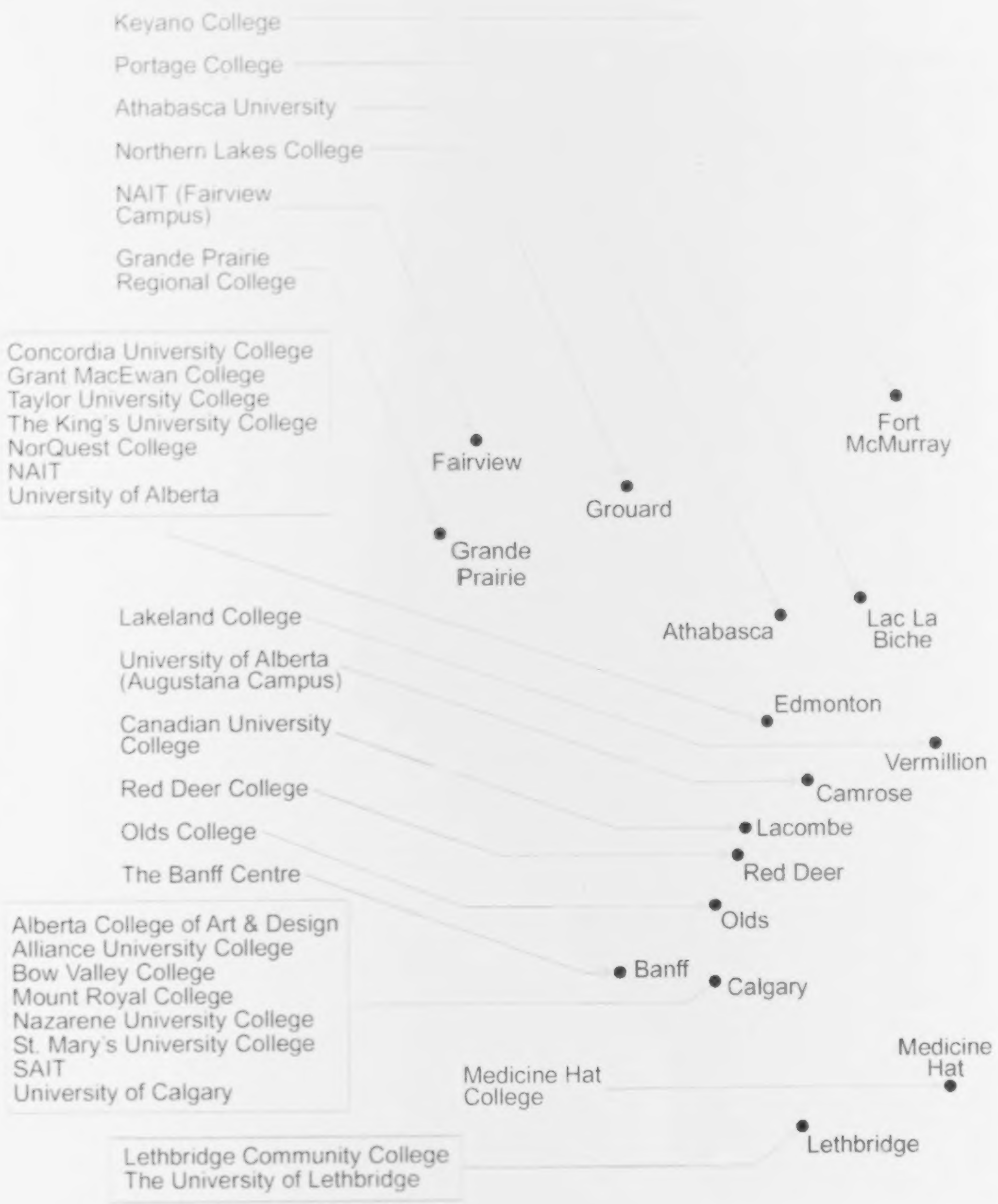
Students Finance Board (SFB)

Under authority of the *Students Finance Act* and the *Alberta Heritage Scholarship Act*, SFB provides advice to the Minister of Advanced Education on matters related to student financial assistance and scholarships. In addition to this advisory role and on the Minister's behalf, SFB may also conduct investigations or research into issues related to student financial assistance.

Alberta's Publicly Funded Post-secondary Institutions


Keyano College
Portage College
Athabasca University
Northern Lakes College
NAIT (Fairview Campus)
Grande Prairie Regional College
Concordia University College
Grant MacEwan College
Taylor University College
The King's University College
NorQuest College
NAIT
University of Alberta
Fort McMurray
Fairview
Grouard
Grande Prairie
Athabasca
Lac La Biche
Lakeland College
University of Alberta (Augustana Campus)
Canadian University College
Red Deer College
Olds College
The Banff Centre
Edmonton
Vermillion
Camrose
Lacombe
Red Deer
Olds
Banff
Calgary
Alberta College of Art & Design
Alliance University College
Bow Valley College
Mount Royal College
Nazarene University College
St. Mary's University College
SAIT
University of Calgary
Medicine Hat College
Medicine Hat
Lethbridge Community College
The University of Lethbridge
Lethbridge

Alberta's Publicly Funded Post-secondary Institutions


Keyano College
Portage College
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Grande Prairie Regional College
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Taylor University College
The King's University College
NorQuest College
NAIT
University of Alberta
Fort McMurray
Fairview
Grouard
Grande Prairie
Athabasca
Lac La Biche
Lakeland College
University of Alberta (Augustana Campus)
Canadian University College
Red Deer College
Olds College
The Banff Centre
Edmonton
Vermillion
Camrose
Lacombe
Red Deer
Olds
Banff
Calgary
Alberta College of Art & Design
Alliance University College
Bow Valley College
Mount Royal College
Nazarene University College
St. Mary's University College
SAIT
University of Calgary
Medicine Hat College
Medicine Hat
Lethbridge
Lethbridge Community College
The University of Lethbridge

APPENDIX B – DEMOGRAPHIC TRENDS

As discussed in earlier sections, demographic trends can have a substantial influence on advanced education systems across Canada. This appendix identifies some of the major demographic trends within Alberta, including inter-provincial comparisons.

Population Change across Canada

Over the last several years, Alberta has had the fastest growing population in Canada. Between 1997 and 2003 Alberta's population increased from 2.830 million to 3.154 million – an increase of 11.4%. At 9.0%, Ontario had the second largest increase followed by British Columbia at 5.0%. Most other provinces had much lower population increases, ranging from 0.4% to 2.9%. In contrast, Newfoundland and Labrador, New Brunswick and Saskatchewan had population decreases of 5.7%, 0.3% and 2.3% respectively.[129]

Total Population (thousands) by Province, 1997 to 2003

	1997	1998	1999	2000	2001	2002	2003	% Change
NL	551	540	533	528	522	519	520	-5.7
PEI	136	136	136	136	137	137	138	1.2
NS	932	932	934	934	932	934	936	0.4
NB	753	751	751	751	750	750	751	-0.3
PQ	7,275	7,296	7,323	7,357	7,397	7,443	7,487	2.9
ON	11,228	11,367	11,506	11,685	11,898	12,097	12,238	9.0
MN	1,136	1,138	1,142	1,147	1,151	1,155	1,163	2.3
SK	1,018	1,018	1,015	1,008	1,000	995	995	-2.3
AB	2,830	2,899	2,953	3,005	3,057	3,114	3,154	11.4
BC	3,949	3,983	4,011	4,039	4,078	4,115	4,147	5.0
CDA	**29,907**	**30,157**	**30,404**	**30,689**	**31,021**	**31,362**	**31,630**	**5.8**

Note: Provincial numbers do not sum to Canada numbers due to territorial populations (not individually identified).

For the 18 to 24 age population, Alberta once again had the most significant population increase in Canada at 20.3%, followed by Ontario (12.4%) and British Columbia (10.3%). Most other provinces had much smaller population increases, ranging from 0.6% to 4.3%. Additionally, three provinces had population decreases in their 18 to 24 age population – Newfoundland and Labrador (13.6%), Nova Scotia (0.8%), and New Brunswick (5.5%).

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[129] Statistics Canada, *CANSIM*, Table 051-0001.

18 to 24 Age Population (thousands) by Province, 1997 to 2003

	1997	1998	1999	2000	2001	2002	2003	% Change
NL	60	56	54	53	52	52	52	-13.6
PEI	13	13	13	13	13	13	13	0.6
NS	88	87	86	86	85	86	88	-0.8
NB	75	73	72	71	71	71	71	-5.5
PQ	676	689	702	707	708	708	704	4.1
ON	1,032	1,039	1,055	1,076	1,105	1,133	1,160	12.4
MN	110	109	109	110	111	112	114	4.3
SK	101	102	102	102	102	102	104	2.5
AB	281	293	303	311	321	331	338	20.3
BC	365	365	368	372	381	393	402	10.3
CDA	**2,812**	**2,836**	**2,876**	**2,911**	**2,960**	**3,012**	**3,058**	**8.7**

Note: Provincial numbers do not sum to Canada numbers due to territorial populations (not individually identified).

A comparison of Alberta's credit enrolment growth and population growth between 1997-98 and 2002-03 indicates that credit enrolment growth (on a full load equivalent basis) has substantially outpaced growth in both the total and 18 to 24 populations. Specifically, enrolment growth over this period was 22.2%, compared to growth in the total population of 10.0% and growth in the 18 to 24 population of 17.8%. Clearly, growth in the 18 to 24 age population more closely approximates the credit enrolment increase than total population growth.

Credit Enrolment (FLE), Total Population (thousands), and 18 to 24 Population (Thousands), Alberta, 1997-98 and 2002-03

	1997-98	2002-03	% Change
Credit Enrolment	111,011.4	135,639.9	22.2
Total Population	2,830	3,114	10.0
18 to 24 Population	281	331	17.8

Components of Population Change Across Canada

The substantial population increase observed in Alberta has, in recent years, been driven primarily by inter-provincial migration and to a lesser extent immigration. Between 1997 and 2003, just under 96,000 individuals immigrated to Alberta, accounting for around 6.4% of the total number of immigrants to Canada.[130] This proportion of total immigration is lower than Alberta's share of the total population (10.0%), suggesting that the province is not attracting its proportional share of immigrants to Canada.

Immigration by Province, 1997 to 2003

	1997	1998	1999	2000	2001	2002	2003	Total
NL	479	411	368	425	453	421	328	2,885
PEI	185	123	125	142	190	146	92	1,003
NS	3,111	2,590	1,624	1,674	1,761	1,614	1,259	13,633
NB	673	717	752	609	883	768	651	5,053
PQ	27,991	27,242	27,739	30,250	36,705	39,083	34,906	223,916
ON	119,401	106,419	91,899	116,744	150,040	152,831	109,970	847,304
MN	4,030	3,093	3,293	4,207	4,834	4,830	4,911	29,198
SK	1,775	1,599	1,752	1,671	1,848	1,821	1,560	12,026
AB	13,783	11,648	11,243	12,865	16,200	16,644	13,571	95,954
BC	53,235	40,456	34,274	36,946	39,489	37,949	31,791	274,140
CDA	**224,857**	**194,459**	**173,194**	**205,710**	**252,533**	**256,289**	**199,159**	**1,506,201**

Note: Provincial numbers do not sum to Canada numbers due to territorial populations (not individually identified).

However, when looking at net inter-provincial migration, Alberta fared substantially better than all other provinces. Between 1997 and 2003, Alberta attracted over 176,000 individuals from other provinces, by far the largest net gain of inter-provincial migrants in the country. At over 72,000, Ontario attracted the next highest number of inter-provincial migrants while Prince Edward Island was the only other province to have a net gain over this period. All other provinces had a net loss in inter-provincial migrants between 1997 and 2003, particularly Québec (75,000) and British Columbia (50,000).[131]

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[130] Statistics Canada, *CANSIM*, Table 051-0004.

[131] Statistics Canada, *CANSIM*, Table 051-0004.

Net Inter-provincial Migration by Province, 1997 to 2003

	1997	1998	1999	2000	2001	2002	2003	**Total**
NL	-8134	-9490	-5695	-4263	-4493	-3352	-14	**-35,441**
PEI	136	-416	193	104	165	62	571	**815**
NS	-1648	-2569	201	-270	-2077	-898	777	**-6,484**
NB	-1263	-3192	-1244	-1183	-1530	-1218	-628	**-10,258**
PQ	-17436	-16958	-13065	-12146	-9442	-4350	-1722	**-75,119**
ON	1977	9231	16706	22369	18623	5354	-1814	**72,446**
MN	-5873	-5276	-2113	-3456	-4323	-4344	-1189	**-26,574**
SK	-2794	-1940	-4333	-7947	-8410	-8820	-4223	**-38,467**
AB	26282	43089	25191	22674	20457	26235	12081	**176,009**
BC	9880	-10029	-14484	-14610	-8286	-8556	-4591	**-50,676**

Note: Provincial numbers do not sum to Canada numbers due to territorial populations (not individually identified).

Regional Population Changes Within Alberta

Like all other provinces, Alberta's population growth tends to concentrate in urban rather than rural regions. For the Calgary and Edmonton census metropolitan areas (CMA's), total population growth between 1997 and 2003 was 16.6% and 10.5% respectively.

Similarly, for those census divisions with larger urban centers (Lethbridge, Medicine Hat, Red Deer, Grande Prairie and Fort McMurray), population growth between 1997 and 2003 was 7.9% for Lethbridge (CD 2), 9.3% for Medicine Hat (CD 1), 11.0% for Grande Prairie (CD 19), 12.8% for Red Deer (CD 8) and 26.2% for Fort McMurray (CD 16). Note that census divisions 6 and 11 were removed from the figure below because of their substantial respective overlap with the Calgary and Edmonton CMA's.

In contrast, population changes in the remainder of Alberta's census divisions were more moderate, including population decreases in regions near Pincher Creek (CD 3), Hanna (CD 4), Wainwright (CD 7), Hinton (CD 14) and Grande Cache (CD 18).[132]

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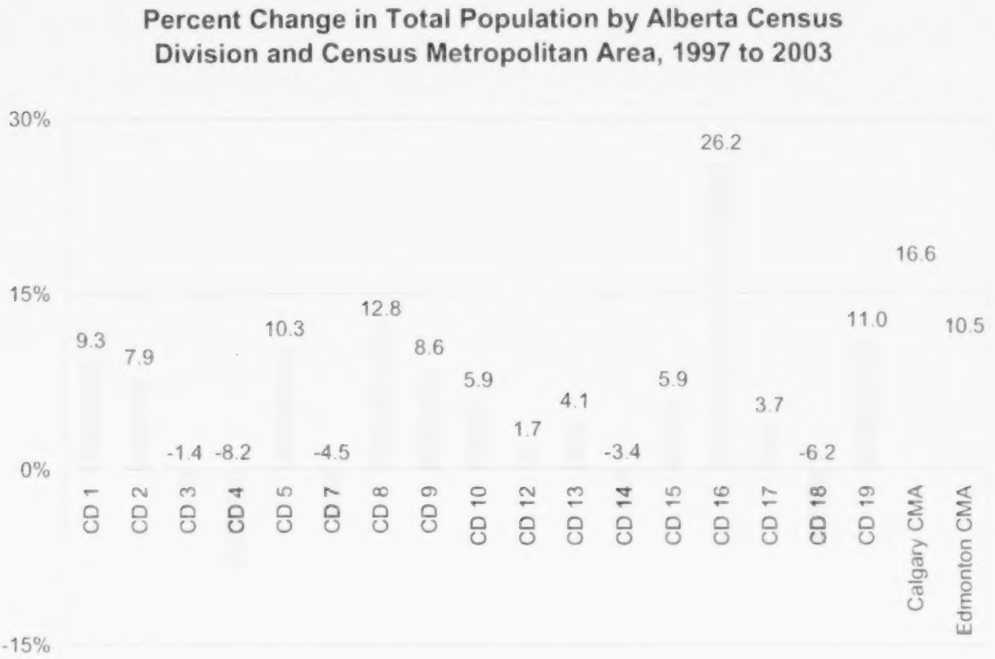
[132] Statistics Canada, *CANSIM*, Table 051-0034.



Alberta's Aboriginal Population

It is important to note that the growth of Alberta's Aboriginal population has outpaced that of the non-Aboriginal population for the last several census periods. Between 1996 and 2001, the number of Aboriginal Albertans increased from 120,580 to 156,220 – an increase of 29.6%. Over the same time period, the increase in the number of non-Aboriginal Albertans was 9.3% (it should be noted that part of the increase in the Aboriginal population numbers may be due to a greater number of individuals identifying their Aboriginal ancestry). The proportion of Aboriginals within Alberta increased from 4.5% in 1996 to 5.3% in 2001. Additionally, Aboriginal children now account for 8% of the school-age population (5-19 years of age) within Alberta.[133]

Alberta's substantially younger and growing Aboriginal population will pose challenges to the province's advanced education system. As the proportion of Aboriginal students increases, Alberta Advanced Education and advanced education providers will be challenged to ensure barriers are removed and the system is responsive to Aboriginal learner's needs. Given the higher distribution of Aboriginals within Alberta's northern and rural communities, this challenge may be felt more acutely at northern and rural institutions than institutions in urban centers.

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[133] Statistics Canada, special tabulation for Alberta Advanced Education.

Population Projections across Canada

Alberta is projected to have among the highest population increases in Canada between 2004 and 2010. At 7.0%, Alberta's total population increase is expected to be the second highest in Canada after British Columbia's 9.0% increase. Manitoba and Saskatchewan are the only provinces projected to have population decreases over this time period.[134]

Population Projections for the Total Population (thousands) by Province, 2004 to 2010

	2004	2005	2006	2007	2008	2009	2010	% Change
NL	539	540	541	542	543	544	545	1.2
PEI	142	143	144	145	146	147	148	4.1
NS	954	957	960	963	966	969	972	1.9
NB	762	763	765	766	767	768	769	0.9
PQ	7,418	7,425	7,431	7,434	7,436	7,438	7,438	0.3
ON	12,203	12,329	12,454	12,577	12,700	12,821	12,941	6.0
MN	1,145	1,144	1,143	1,141	1,140	1,139	1,138	-0.6
SK	1,016	1,013	1,011	1,008	1,005	1,002	999	-1.7
AB	3,144	3,181	3,218	3,255	3,292	3,328	3,364	7.0
BC	4,322	4,388	4,454	4,519	4,583	4,647	4,711	9.0
CDA	**31,751**	**31,992**	**32,228**	**32,461**	**32,691**	**32,917**	**33,140**	**4.4**

Note: Projections based on medium fertility, medium life expectancy, medium immigration and western inter-provincial migration. For some jurisdictions, 2003 actual population figures may be higher than 2004 projections because projection data were generated in 2001 (before actual population updates were available).

Similarly, at 3.9%, Alberta is expected to have the third highest rate of growth in the 18 to 24 age population after Ontario (8.6%) and British Columbia (7.0%). Between 2004 and 2010 all other provinces are projected to have population changes in the age 18 to 24 population that range from decreases of 11.1% (in Newfoundland and Labrador) to growth of 0.9% (in Manitoba).[135]

Note that a decrease in the 18 to 24 population is not expected within Alberta until 2011 and within Canada until 2014.

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[134] Statistics Canada. *Population Projections for Canada, Provinces and Territories, 2000-2026*. 2001. Catalogue 91520XPB.

[135] Statistics Canada. *Population Projections for Canada, Provinces and Territories, 2000-2026*. 2001. Catalogue 91520XPB.

Population Projections for the 18 to 24 Population (thousands) by Province, 2004 to 2010

	2004	2005	2006	2007	2008	2009	2010	% Change
NL	53	52	51	50	49	48	47	-11.1
PEI	14	14	14	14	15	14	14	0.0
NS	91	91	91	91	91	91	91	0.1
NB	71	70	70	70	69	69	68	-3.9
PQ	673	659	647	642	647	655	662	-1.6
ON	1,135	1,150	1,161	1,179	1,199	1,217	1,233	8.6
MN	112	112	112	112	113	113	113	0.9
SK	105	104	103	103	103	102	101	-3.5
AB	328	331	333	336	339	340	341	3.9
BC	406	412	417	422	427	431	435	7.0
CDA	**3,000**	**3,008**	**3,011**	**3,031**	**3,064**	**3,094**	**3,119**	**4.0**

Note: Projections based on medium fertility, medium life expectancy, medium immigration and western inter-provincial migration. For some jurisdictions, 2002 actual data in prior table may be trend inconsistent with 2003 projection data, as projections were released in early 2001 before actual data were available for updates.

APPENDIX C – SUPPLEMENTARY TABLES

Table 1. Full Load Equivalent Enrolment by Institution, 1997-98 to 2002-03

	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	% Change
University Sector							
Alberta	25,377.0	25,678.0	25,981.0	26,425.3	27,932.8	29,426.6	16.0
Calgary	19,660.1	20,205.5	21,095.8	21,749.5	22,587.2	23,912.6	21.6
Lethbridge	4,565.5	4,768.5	5,173.9	5,502.8	5,945.2	6,190.0	35.6
Athabasca	2,744.3	3,150.8	3,847.6	4,341.2	4,573.5	5,153.8	87.8
Sub-total	52,346.9	53,802.8	56,098.3	58,018.8	61,038.7	64,683.0	23.6
Banff Centre	289.1	265.8	270.0	295.0	281.0	324.0	12.1
College Sector							
ACAD	741.8	758.2	839.9	846.8	866.2	900.2	21.4
Bow Valley	2,936.2	2,940.1	3,035.9	3,044.4	3,501.0	3,966.9	35.1
Fairview	834.4	935.3	718.0	799.7	899.4	1,079.8	29.4
GPRC	1,412.6	1,420.3	1,507.6	1,534.9	1,520.9	1,567.5	11.0
GMC	6,800.5	7,248.8	7,851.4	9,643.3	9,828.0	10,585.7	55.7
Keyano	1,261.6	1,370.3	1,356.0	1,205.2	1,267.8	1,278.3	1.3
Lakeland	1,286.1	1,309.4	1,448.7	1,657.7	1,773.5	1,946.5	51.3
Lethbridge	3,761.1	3,733.5	3,962.9	4,131.9	4,255.1	4,363.9	16.0
MHC	2,043.0	2,166.4	2,368.6	2,424.9	2,320.5	2,496.9	22.2
MRC	6,307.5	6,378.2	6,518.4	6,610.5	7,273.2	7,679.5	21.8
NorQuest	3,481.6	3,451.1	3,414.3	3,707.8	3,788.8	3,945.5	13.3
NLC	1,073.4	1,200.3	1,308.5	1,091.7	1,008.8	1,007.6	-6.1
Olds	1,176.8	1,252.5	1,261.0	1,216.5	1,211.0	1,230.7	4.6
Portage	922.6	1,171.5	1,028.3	940.6	1,054.0	977.0	5.9
Red Deer	3,450.2	3,508.9	3,582.8	3,541.1	3,544.4	3,785.0	9.7
Sub-total	37,489.4	38,844.8	40,202.3	42,397.0	44,112.6	46,811.0	24.9
Technical Institute Sector							
NAIT	9,423.9	10,044.8	10,657.6	10,919.0	10,680.7	10,879.9	15.5
SAIT	9,124.7	9,721.7	9,750.3	9,440.6	9,690.1	9,986.3	9.4
Sub-total	18,548.6	19,766.5	20,407.9	20,359.6	20,370.8	20,866.2	12.5
Private University College Sector							
Augustana	671.3	711.5	750.3	795.6	823.1	881.4	31.3
Canadian	281.5	295.1	370.0	384.6	362.0	390.6	38.8
Concordia	970.3	981.1	1,040.5	1,131.1	1,115.8	1,148.3	18.3
King's	414.3	422.8	435.5	451.7	475.4	535.4	29.2
Sub-total	2,337.4	2,410.5	2,596.3	2,763.0	2,776.3	2,955.7	26.5
Total	**111,011.4**	**115,090.4**	**119,574.8**	**123,833.4**	**128,579.4**	**135,639.9**	**22.2**

Note: Numbers may not add due to rounding. ACAD is the Alberta College of Art and Design; GPRC is Grande Prairie Regional College, GMC is Grant MacEwan College, MHC is Medicine Hat College, MRC is Mount Royal College, NLC is Northern Lakes College, NAIT is the Northern Alberta Institute of Technology; SAIT is the Southern Alberta Institute of Technology. Refer to Appendix A for the location of all publicly funded post-secondary institutions (note that Augustana University College has now merged with the University of Alberta and Fairview College has now merged with NAIT).

Table 2. Full Load Equivalent Enrolment by Region, 1997-98 and 2002-03

	1997-98	2002-03	% Change
Edmonton Institutions			
University of Alberta	25,377.0	29,426.6	16.0
Northern Alberta Institute of Technology	9,423.9	10,879.9	15.5
Grant MacEwan College	6,800.5	10,585.7	55.7
NorQuest College	3,481.6	3,945.5	13.3
Concordia University College	970.3	1,148.3	18.3
The King's University College	414.3	535.4	29.2
Sub-total	46,467.6	56,521.4	21.6
Calgary Institutions			
University of Calgary	19,660.1	23,912.6	21.6
Southern Alberta Institute of Technology	9,124.7	9,986.3	9.4
Mount Royal College	6,307.5	7,679.5	21.8
Bow Valley College	2,936.2	3,966.9	35.1
Alberta College of Art and Design	741.8	900.2	21.4
Sub-total	38,770.3	46,445.5	19.8
Institutions in Regional Centers			
The University of Lethbridge	4,565.5	6,190.0	35.6
Lethbridge Community College	3,761.1	4,363.9	16.0
Red Deer College	3,450.2	3,785.0	9.7
Medicine Hat College	2,043.0	2,496.9	22.2
Grande Prairie College	1,412.6	1,567.5	11.0
Keyano College	1,261.6	1,278.3	1.3
Sub-total	16,494.0	19,681.6	19.3
Institutions Outside of Larger Centers			
Lakeland College	1,286.1	1,946.5	51.3
Olds College	1,176.8	1,230.7	4.6
Fairview College	834.4	1,079.8	29.4
Northern Lakes College	1,073.4	1,007.6	-6.1
Portage College	922.6	977.0	5.9
Augustana University College	671.3	881.4	31.3
Canadian University College	281.5	390.6	38.8
The Banff Centre	289.1	324.0	12.1
Sub-total	6,535.2	7,837.6	19.9
Athabasca University	2,744.3	5,153.8	87.8
Total	**111,011.4**	**135,639.9**	**22.2**

Note: Numbers may not add due to rounding.

Table 3. Full-time College Enrolment by Province, 1997-98 to 1999-00

	1997-98	1998-99	1999-00	Change	% Change
NL	5,974	5,973	6,576	602	10.1
PEI	1,620	1,899	1,861	241	14.9
NS	7,307	7,039	7,377	70	1.0
NB	5,152	5,221	5,366	214	4.2
PQ	163,550	164,469	162,874	-676	-0.4
ON	142,353	142,341	143,617	1,264	0.9
MN	3,802	4,181	5,276	1,474	38.8
SK	3,195	2,740	2,918	-277	-8.7
AB	29,595	31,999	33,217	3,622	12.2
BC	35,599	37,127	39,176	3,577	10.0
CDA	**398,643**	**403,516**	**408,781**	**10,138**	**2.5**

Note: Provincial numbers do not sum to Canada numbers due to territorial college enrolments (not individually identified).

Table 4. Part-time College Enrolment by Province, 1997-98 to 1999-00

	1997-98	1998-99	1999-00	Change	% Change
NL	177	471	832	655	370.1
PEI	75	75	113	38	50.7
NS	395	326	399	4	1.0
NB	121	143	112	-9	-7.4
PQ	10,274	8,959	8,841	-1,433	-13.9
ON	10,099	10,243	10,988	889	8.8
MN	2,446	2,513	2,295	-151	-6.2
SK	157	89	131	-26	-16.6
AB	16,543	17,838	12,996	-3,547	-21.4
BC	50,324	49,654	47,721	-2,603	-5.2
CDA	**91,577**	**91,439**	**85,396**	**-6,181**	**-6.7**

Note: Provincial numbers do not sum to Canada numbers due to territorial college enrolments (not individually identified).

Table 5. Full-time University Undergraduate Enrolment by Province, 1997-98 to 2001-02

	1997-98	1998-99	1999-00	2000-01	2001-02	Change	% Change
NL	10,090	10,105	11,700	11,430	10,975	885	8.8
PEI	2,820	2,750	2,880	3,055	3,000	180	6.4
NS	30,260	30,475	29,850	30,855	32,825	2,565	8.5
NB	18,365	18,460	19,080	20,295	20,385	2,020	11.0
PQ	167,080	166,550	169,985	170,775	173,240	6,160	3.7
ON	243,125	241,945	250,950	257,270	269,600	26,475	10.9
MN	25,245	25,135	25,355	24,645	25,970	725	2.9
SK	24,395	24,290	24,225	25,140	25,265	870	3.6
AB	52,805	53,725	57,390	60,475	62,855	10,050	19.0
BC	58,835	60,060	59,615	60,410	63,395	4,560	7.8
CDA	**633,015**	**633,495**	**651,035**	**664,355**	**687,510**	**54,495**	**8.6**

Note: Numbers may not add due to rounding.

Table 6. Part-time University Undergraduate Enrolment by Province, 1997-98 to 2001-02

	1997-98	1998-99	1999-00	2000-01	2001-02	Change	% Change
NL	1,195	1,200	1,470	1,425	1,410	215	18.0
PEI	440	405	355	350	320	-120	-27.3
NS	3,555	3,810	3,805	3,855	4,115	560	15.8
NB	1,645	1,795	2,490	2,810	2,515	870	52.9
PQ	62,380	61,545	62,150	63,655	62,825	445	0.7
ON	47,675	44,565	46,965	48,605	50,545	2,870	6.0
MN	7,395	7,360	7,370	5,675	6,085	-1,310	-17.7
SK	3,600	3,915	3,915	4,290	4,210	610	16.9
AB	7,285	7,525	9,530	11,180	11,405	4,120	56.6
BC	16,715	16,630	17,315	18,060	16,960	245	1.5
CDA	**151,885**	**148,760**	**155,370**	**159,895**	**160,390**	**8,505**	**5.6**

Note: Numbers may not add due to rounding.

Table 7. Full-time University Graduate Enrolment by Province, 1997-98 to 2001-02

	1997-98	1998-99	1999-00	2000-01	2001-02	Change	% Change
NL	1,995	1,965	1,505	1,535	1,570	-460	-21.3
PEI	35	30	75	90	100	55	185.7
NS	3,485	3,775	4,350	4,730	5,030	1,245	44.3
NB	1,485	1,590	1,575	1,680	1,680	195	13.1
PQ	41,060	40,700	41,370	43,595	47,375	2,535	15.4
ON	37,280	37,665	38,525	39,240	41,030	1,960	10.1
MN	3,245	3,175	3,215	3,065	3,145	-180	-3.1
SK	2,985	2,980	3,100	2,790	2,865	-195	-4.0
AB	9,055	9,210	10,390	10,820	11,345	1,765	25.3
BC	12,050	12,395	12,325	12,330	12,745	280	5.8
CDA	**112,690**	**113,485**	**116,430**	**119,880**	**126,890**	**7,190**	**12.6**

Note: Numbers may not add due to rounding.

Table 8. Part-time University Graduate Enrolment by Province, 1997-98 to 2001-02

	1997-98	1998-99	1999-00	2000-01	2001-02	Change	% Change
NL	630	585	590	615	590	-40	-6.3
PEI	0	0	25	25	50	50	n/a
NS	1,290	1,495	1,790	2,070	2,150	860	66.7
NB	560	540	535	615	570	10	1.8
PQ	18,410	15,495	15,710	18,030	20,895	2,485	13.5
ON	9,350	9,000	9,095	9,330	9,470	120	1.3
MN	880	835	950	860	860	-20	-2.3
SK	1,250	1,235	1,170	945	1,035	-215	-17.2
AB	2,870	3,040	3,925	3,885	3,930	1,060	36.9
BC	2,065	2,425	2,290	2,520	2,565	500	24.2
CDA	**37,305**	**34,655**	**36,090**	**38,895**	**42,120**	**4,815**	**12.9**

Note: Numbers may not add due to rounding.

Table 9. Participation Rates (%) by Province and Sector, 1997 to 2004

		1997	1998	1999	2000	2001	2002	2003	2004
NL	C	13.4	13.1	11.8	13.4	14.1	11.9	10.7	9.7
	U	24.4	25.4	27.6	26.2	23.7	28.7	26.0	28.6
	T	37.7	38.5	39.5	39.6	37.8	40.6	36.7	38.4
PEI	C	8.1	10.6	10.4	10.2	10.4	8.7	9.4	10.0
	U	19.1	25.0	20.1	21.2	23.1	25.4	28.3	27.9
	T	27.2	35.6	30.6	31.4	33.6	34.1	37.7	37.9
NS	C	8.6	7.3	8.1	8.7	10.3	7.6	8.0	8.6
	U	21.6	21.3	21.1	22.3	20.1	23.3	23.8	26.0
	T	30.3	28.6	29.2	31.1	30.3	31.0	31.8	34.6
NB	C	7.8	6.9	7.3	8.5	10.2	9.8	7.5	8.3
	U	26.5	26.5	26.3	28.2	25.0	25.3	27.7	27.2
	T	34.3	33.4	33.6	36.7	35.2	35.1	35.2	35.5
PQ	C	22.3	22.7	21.2	20.8	21.2	20.8	19.0	19.8
	U	18.9	17.1	17.2	18.3	17.8	17.1	19.3	19.3
	T	41.2	39.8	38.4	39.0	39.0	38.0	38.3	39.1
ON	C	14.9	14.7	14.8	14.2	15.2	14.8	14.4	14.8
	U	20.1	20.1	20.4	21.5	20.6	21.3	22.5	26.0
	T	35.1	34.8	35.2	35.7	35.8	36.1	36.9	40.8
MN	C	6.4	6.6	6.5	6.6	6.7	7.5	7.7	7.5
	U	21.2	21.3	21.5	21.8	24.6	24.3	25.1	25.4
	T	27.6	27.9	28.1	28.4	31.3	31.8	32.8	32.9
SK	C	5.6	6.4	6.9	6.9	7.8	7.2	7.3	7.0
	U	22.1	22.1	21.5	22.2	23.8	23.2	23.8	21.9
	T	27.7	28.5	28.4	29.0	31.6	30.4	31.0	28.8
AB	C	13.8	14.0	13.4	13.4	15.8	15.4	15.4	15.1
	U	17.3	16.4	16.0	14.2	14.9	15.9	17.2	15.8
	T	31.1	30.4	29.3	27.6	30.6	31.3	32.6	30.9
BC	C	15.7	16.2	17.1	18.1	18.2	17.6	18.3	17.8
	U	16.9	18.5	17.7	17.2	18.2	20.1	21.9	22.4
	T	32.6	34.7	34.8	35.4	36.4	37.7	40.2	40.2
CDA	**C**	**15.6**	**15.7**	**15.5**	**15.3**	**16.2**	**15.7**	**15.2**	**15.5**
	U	**19.6**	**19.3**	**19.2**	**19.7**	**19.5**	**20.1**	**21.5**	**22.7**
	T	**35.2**	**35.0**	**34.7**	**35.1**	**35.7**	**35.8**	**36.7**	**38.2**

Note: C is college participation. U is university participation and T is total participation.

Table 10. Credentials Awarded by Institution, 1997-98 to 2002-03

	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	% Change
University Sector							
Alberta	6,392	7,194	5,841	6,493	7,010	7,298	14.2
Calgary	3,709	4,125	4,870	4,843	5,158	5,782	55.9
Lethbridge	1,189	1,241	1,419	1,348	1,572	1,703	43.2
Athabasca	449	374	564	668	735	1,047	133.2
Sub-total	11,739	12,934	12,694	13,352	14,475	15,830	34.8
College Sector							
ACAD	193	175	162	195	199	195	1.0
Bow Valley	291	221	374	422	496	640	119.9
Fairview	255	224	207	179	199	240	-5.9
Grande Prairie	250	199	262	281	245	265	6.0
Grant MacEwan	1,299	1,166	1,224	1,654	1,731	1,826	40.6
Keyano	490	577	397	446	387	435	-11.2
Lakeland	379	376	362	441	490	558	47.2
Lethbridge	1,117	992	1,049	1,142	983	1,049	-6.1
Medicine Hat	339	515	507	421	363	316	-6.8
Mount Royal	1,330	1,440	1,463	1,455	1,467	2,054	54.4
NorQuest	670	853	823	926	1,005	1,234	84.2
Northern Lakes	53	49	101	100	103	95	79.2
Olds	429	445	502	441	481	506	17.9
Portage	174	278	210	211	196	160	-8.0
Red Deer	519	560	581	530	563	561	8.1
Sub-total	7,788	8,070	8,224	8,844	8,908	10,134	30.1
Technical Institute Sector							
NAIT	2,835	2,944	2,633	3,120	2,851	3,228	13.9
SAIT	2,402	2,502	2,866	2,145	1,768	2,081	-13.4
Sub-total	5,237	5,446	5,499	5,265	4,619	5,309	1.4
Private University College Sector							
Augustana	131	124	158	127	131	152	16.0
Canadian	33	37	60	49	59	68	106.1
Concordia	164	209	241	212	268	286	74.4
King's	85	111	107	127	112	120	41.2
Sub-total	413	481	566	515	570	626	51.6
Total	**25,177**	**26,931**	**26,983**	**27,976**	**28,572**	**31,899**	**26.7**

Note: ACAD is the Alberta College of Art and Design; NAIT is the Northern Alberta Institute of Technology; SAIT is the Southern Alberta Institute of Technology. Refer to Appendix A for the location of all publicly funded post-secondary institutions (note that Augustana University College has now merged with the University of Alberta and Fairview College has now merged with NAIT).

Table 11. Credentials Awarded by Region, 1997-98 and 2002-03

	1997-98	2002-03	% Change
Edmonton Institutions			
University of Alberta	6,392	7,298	14.2
Northern Alberta Institute of Technology	2,835	3,228	13.9
Grant MacEwan College	1,299	1,826	40.6
NorQuest College	670	1,234	84.2
Concordia University College	164	286	74.4
The King's University College	85	120	41.2
Sub-total	11,445	13,992	22.3
Calgary Institutions			
University of Calgary	3,709	5,782	55.9
Southern Alberta Institute of Technology	2,402	2,081	-13.4
Mount Royal College	1,330	2,054	54.4
Bow Valley College	291	640	119.9
Alberta College of Art and Design	193	195	1.0
Sub-total	7,925	10,752	35.7
Institutions in Regional Centers			
The University of Lethbridge	1,189	1,703	43.2
Lethbridge Community College	1,117	1,049	-6.1
Red Deer College	519	561	8.1
Medicine Hat College	339	316	-6.8
Grande Prairie College	250	265	6.0
Keyano College	490	435	-11.2
Sub-total	3,904	4,329	10.9
Institutions Outside of Larger Centers			
Lakeland College	379	558	47.2
Olds College	429	506	17.9
Fairview College	255	240	-5.9
Northern Lakes College	53	95	79.2
Portage College	174	160	-8.0
Augustana University College	131	152	16.0
Canadian University College	33	68	106.1
Sub-total	1,454	1,779	22.4
Athabasca University	449	1,047	133.2
Total	**25,177**	**31,899**	**26.7**

Table 12. College Certificates and Diplomas Awarded by Province, 1997 and 1998

	1997	1998	Change	% Change
NL	1,800	2,171	371	20.6
PEI	776	1,051	275	35.4
NS	4,179	4,313	134	3.2
NB	2,561	2,757	196	7.7
PQ	36,869	39,439	2,570	7.0
ON	40,572	44,744	4,172	10.3
MN	1,559	1,443	-116	-7.4
SK	1,449	1,257	-192	-13.3
AB	8,367	8,372	5	0.1
BC	6,788	7,321	533	7.9
CDA	**105,019**	**113,057**	**8,038**	**7.7**

Note: Provincial numbers do not sum to Canada numbers due to territorial college credentials (not individually identified).

Table 13. Bachelor's and Other Undergraduate Degrees Awarded by Province, 1997 to 2001

	1997	1998	1999	2000	2001	Change	% Change
NL	2,174	2,207	2,310	2,175	2,195	21	1.0
PEI	514	385	500	495	530	16	3.1
NS	5,982	6,079	5,995	5,880	5,275	-707	-11.8
NB	3,518	3,310	3,285	3,335	3,245	-273	-7.8
QC	28,783	27,430	28,280	27,820	27,970	-813	-2.8
ON	53,987	54,030	53,380	54,755	55,545	1,558	2.9
MN	5,000	4,773	4,615	4,550	4,610	-390	-7.8
SK	3,926	3,983	4,200	4,425	4,315	389	9.9
AB	10,611	10,771	11,135	11,485	12,150	1,539	14.5
BC	11,301	11,893	12,740	13,650	13,140	1,839	16.3
CDA	**125,796**	**124,861**	**126,435**	**128,570**	**128,975**	**3,179**	**2.5**

Note: Provincial numbers do not sum to Canada numbers due to rounding applied by Statistics Canada for confidentiality purposes.

Table 14. Master's Degrees Awarded by Province, 1997 to 2001

	1997	1998	1999	2000	2001	Change	% Change
NL	272	289	355	395	330	58	21.3
PEI	6	3	10	10	15	9	150.0
NS	989	894	1,175	1,050	1,110	121	12.2
NB	408	366	365	415	400	-8	-2.0
QC	6,576	6,769	6,815	7,470	7,665	1,089	16.6
ON	8,458	8,845	9,275	9,530	9,795	1,337	15.8
MN	556	527	510	455	475	-81	-14.6
SK	472	507	485	525	580	108	22.9
AB	1,507	1,578	1,800	1,810	2,100	593	39.3
BC	2,075	2,248	2,490	2,570	2,395	320	15.4
CDA	**21,319**	**22,026**	**23,270**	**24,230**	**24,865**	**3,546**	**16.6**

Note: Provincial numbers do not sum to Canada numbers due to rounding applied by Statistics Canada for confidentiality purposes.

Table 15. Earned Doctorates Awarded by Province, 1997 to 2001

	1997	1998	1999	2000	2001	Change	% Change
NL	32	29	45	30	30	-2	-6.3
PEI	0	0	0	0	0	0	n/a
NS	81	87	75	55	65	-16	-19.8
NB	38	27	30	35	40	2	5.3
QC	1,143	1,172	1,170	1,165	1,095	-48	-4.2
ON	1,579	1,547	1,570	1,460	1,435	-144	-9.1
MN	113	107	90	90	85	-28	-24.8
SK	103	89	90	90	70	-33	-32.0
AB	400	419	400	400	390	-10	-2.5
BC	477	499	500	525	505	28	5.9
CDA	**3,966**	**3,976**	**3,965**	**3,860**	**3,715**	**-251**	**-6.3**

Note: Provincial numbers do not sum to Canada numbers due to rounding applied by Statistics Canada for confidentiality purposes.

Table 16. Total Spending on Trade and Vocational Education by Province, 1997-98 to 2001-02 (millions, constant 2001 dollars)

	1997-98	1998-99	1999-00	2000-01	2001-02	% Change
NL	455.5	339.0	201.7	200.2	192.6	-57.7
PEI	58.7	55.6	39.3	37.6	37.2	-36.6
NS	220.9	223.4	117.1	134.1	136.6	-38.1
NB	228.5	214.8	271.0	345.5	345.8	51.4
PQ	1,155.3	1,874.0	1,517.9	1,576.5	1,519.3	31.5
ON	1,636.9	1,571.5	1,397.8	1,338.9	1,328.3	-18.9
MN	220.1	255.0	247.5	259.6	274.5	24.7
SK	283.0	307.3	361.2	387.0	390.1	37.9
AB	755.2	900.1	822.3	888.0	891.9	18.1
BC	938.7	929.8	986.9	997.4	1,010.3	7.6
CDA	**6,168.3**	**6,909.5**	**6,127.0**	**6,269.3**	**6,231.5**	**1.0**

Note: Provincial numbers do not sum to Canada numbers due to territorial college credentials (not individually identified).

Table 17. Total Spending on Colleges by Province, 1997-98 to 2001-02 (millions, constant 2001 dollars)

	1997-98	1998-99	1999-00	2000-01	2001-02	% Change
NL	38.7	32.2	35.6	35.6	38.3	-0.9
PEI	29.5	23.5	23.8	24.1	24.3	-17.7
NS	79.6	97.5	108.3	109.1	109.0	37.0
NB	71.7	83.2	67.1	65.5	65.2	-9.1
PQ	2,126.2	2,118.5	2,117.2	2,107.8	2,123.0	-0.1
ON	1,487.7	1,459.0	2,039.3	1,659.8	1,545.7	3.9
MN	98.8	99.4	110.4	117.1	121.4	22.8
SK	64.6	65.7	64.8	66.8	65.8	1.9
AB	436.0	477.2	582.6	578.8	624.7	43.3
BC	578.3	588.7	540.3	567.7	605.5	4.7
CDA	**5,066.0**	**5,098.6**	**5,756.8**	**5,400.1**	**5,390.0**	**6.4**

Note: Provincial numbers do not sum to Canada numbers due to territorial college credentials (not individually identified).

Table 18. Total Spending on Universities by Province, 1997-98 to 2001-02 (millions, constant 2001 dollars)

	1997-98	1998-99	1999-00	2000-01	2001-02	% Change
NL	252.9	261.5	282.8	281.0	301.4	19.2
PEI	49.2	52.7	57.9	63.1	63.2	28.5
NS	501.8	558.8	638.8	629.7	636.2	26.8
NB	346.3	343.0	357.8	356.8	371.2	7.2
PQ	3,369.6	3,384.1	3,686.1	3,720.3	3,853.2	14.4
ON	4,763.7	5,109.4	5,687.9	5,576.6	5,728.8	20.3
MN	489.0	535.6	568.5	625.9	640.8	31.0
SK	554.0	551.0	626.1	654.4	656.6	18.5
AB	1,168.0	1,246.4	1,461.3	1,472.2	1,559.5	33.5
BC	1,633.2	1,644.7	1,855.3	1,955.1	2,068.1	26.6
CDA	**13,213.7**	**13,778.2**	**15,316.5**	**15,435.1**	**15,977.3**	**20.9**

Note: Provincial numbers do not sum to Canada numbers due to territorial college credentials (not individually identified).

Table 19. Total Spending on Advanced Education by Province, 1997-98 to 2001-02 (millions, constant 2001 dollars)

	1997-98	1998-99	1999-00	2000-01	2001-02	% Change
NL	747.1	632.7	520.1	516.8	532.3	-28.7
PEI	137.4	131.8	120.9	124.8	124.7	-9.2
NS	802.2	879.7	864.2	873.0	881.8	9.9
NB	646.5	641.0	696.0	767.9	782.2	21.0
PQ	6,651.1	7,376.6	7,321.2	7,404.6	7,495.5	12.7
ON	7,888.3	8,139.9	9,125.0	8,575.4	8,602.9	9.1
MN	808.0	890.0	926.4	1,002.5	1,036.7	28.3
SK	901.5	924.0	1,052.1	1,108.1	1,112.5	23.4
AB	2,359.2	2,623.7	2,866.3	2,939.0	3,076.2	30.4
BC	3,150.3	3,163.3	3,382.5	3,520.2	3,683.9	16.9
CDA	**24,448.0**	**25,786.4**	**27,200.4**	**27,104.5**	**27,598.9**	**12.9**

Note: Provincial numbers do not sum to Canada numbers due to territorial college credentials (not individually identified).

Table 20. Public Spending on Trade and Vocational Education by Province, 1997-98 to 2001-02 (millions, constant 2001 dollars)

	1997-98	1998-99	1999-00	2000-01	2001-02	% Change
NL	435.3	327.6	188.0	186.6	178.8	-58.9
PEI	52.0	48.4	32.2	30.6	30.2	-41.9
NS	210.4	214.8	103.7	120.3	122.7	-41.7
NB	214.6	206.7	260.2	334.7	334.9	56.1
PQ	1,103.3	1,812.3	1,456.4	1,515.0	1,457.7	32.1
ON	1,512.0	1,412.5	1,297.5	1,238.7	1,228.6	-18.7
MN	200.7	233.0	228.2	240.1	255.1	27.1
SK	261.8	287.4	341.8	365.4	368.7	40.8
AB	636.4	748.6	694.2	759.2	762.8	19.9
BC	795.3	794.5	859.3	868.6	880.0	10.7
CDA	**5,632.9**	**6,321.6**	**5,622.2**	**5,760.1**	**5,720.6**	**1.6**

Note: Provincial numbers do not sum to Canada numbers due to territorial college credentials (not individually identified).

Table 21. Public Spending on Colleges by Province, 1997-98 to 2001-02 (millions, constant 2001 dollars)

	1997-98	1998-99	1999-00	2000-01	2001-02	% Change
NL	25.5	23.7	33.9	33.9	36.6	43.5
PEI	16.2	13.6	14.0	14.5	14.6	-9.5
NS	67.3	80.4	92.1	90.8	90.6	34.6
NB	59.7	70.1	49.5	48.0	47.5	-20.4
PQ	1,894.3	1,863.6	1,862.2	1,851.0	1,865.7	-1.5
ON	1,012.8	1,050.0	1,486.3	1,106.7	995.4	-1.7
MN	88.9	87.3	95.5	102.1	106.4	19.6
SK	57.9	59.4	57.6	59.1	58.2	0.5
AB	298.6	305.2	394.6	391.1	436.6	46.2
BC	435.5	458.7	436.5	463.4	500.3	14.9
CDA	**4,007.5**	**4,063.9**	**4,584.8**	**4,223.5**	**4,214.0**	**5.2**

Note: Provincial numbers do not sum to Canada numbers due to territorial college credentials (not individually identified).

Table 22. Public Spending on Universities by Province, 1997-98 to 2001-02 (millions, constant 2001 dollars)

	1997-98	1998-99	1999-00	2000-01	2001-02	% Change
NL	179.5	185.2	197.5	196.5	215.6	20.2
PEI	38.1	38.1	35.8	39.7	39.9	4.5
NS	284.2	308.0	336.2	325.2	321.2	13.0
NB	242.2	223.3	237.1	234.0	244.6	1.0
PQ	2,520.6	2,674.4	2,616.5	2,644.0	2,774.8	10.1
ON	2,858.9	2,971.6	3,764.1	3,218.3	3,180.2	11.2
MN	349.2	372.1	403.4	447.1	446.6	27.9
SK	374.3	389.3	428.0	454.0	455.9	21.8
AB	812.7	836.9	959.0	952.4	1,014.2	24.8
BC	1,065.1	1,094.8	1,230.5	1,326.6	1,434.5	34.7
CDA	**8,810.8**	**9,184.8**	**10,297.9**	**9,938.0**	**10,225.7**	**16.1**

Note: Provincial numbers do not sum to Canada numbers due to territorial college credentials (not individually identified).

Table 23. Total Public Spending on Advanced Education by Province, 1997-98 to 2001-02 (millions, constant 2001 dollars)

	1997-98	1998-99	1999-00	2000-01	2001-02	% Change
NL	640.2	536.6	419.4	417.0	431.0	-32.7
PEI	106.3	100.1	81.9	84.8	84.7	-20.3
NS	561.9	603.2	531.9	536.4	534.5	-4.9
NB	516.5	500.1	546.7	616.7	627.0	21.4
PQ	5,518.2	6,350.3	5,935.1	6,010.0	6,098.1	10.5
ON	5,383.7	5,434.0	6,548.0	5,563.8	5,404.2	0.4
MN	638.8	692.5	727.1	789.3	808.1	26.5
SK	694.0	736.0	827.4	878.6	882.7	27.2
AB	1,747.7	1,890.8	2,047.8	2,102.6	2,213.5	26.7
BC	2,295.9	2,348.0	2,526.4	2,658.6	2,814.7	22.6
CDA	**18,451.2**	**19,570.3**	**20,504.9**	**19,921.6**	**20,160.3**	**9.3**

Note: Provincial numbers do not sum to Canada numbers due to territorial college credentials (not individually identified).

Table 24. Revenues by Source to Support Net Operating Expenditures, 1997-98 to 2002-03

	Tuition and Other Student Fees	Alberta Advanced Education Grants	Other Revenue Sources	**Total Revenues to Support NOE**
1997-98	273,299,281	744,378,763	93,910,520	**1,111,588,564**
1998-99	314,522,592	751,501,692	173,814,720	**1,239,839,004**
1999-00	349,081,354	773,111,879	143,435,740	**1,265,628,973**
2000-01	382,879,536	837,636,908	180,892,900	**1,401,409,344**
2001-02	421,937,362	921,979,039	195,511,608	**1,539,428,009**
2002-03	471,102,421	979,061,178	205,104,485	**1,655,268,084**
% Change	72.4	31.5	118.4	**48.9**

Table 25. Student Financial Assistance by Type, 1997-98 to 2003-04

	Canada Student Loan	Alberta Student Loan	Non-Repayable Grants	**Total Needs-Based Assistance**
1997-98	156,399,870	113,065,265	10,538,138	**280,003,273**
1998-99	156,989,220	103,598,920	22,607,828	**283,195,968**
1999-00	171,018,280	99,882,828	51,322,308	**322,223,416**
2000-01	187,589,005	111,533,264	51,548,461	**350,670,730**
2001-02	185,517,990	97,403,300	68,823,464	**351,744,754**
2002-03	191,366,284	91,808,192	80,640,654	**363,815,130**
2003-04	204,606,915	91,202,265	91,055,712	**386,864,892**
% Change	30.8	-19.3	764.1	**38.2**

Table 26. Total Sponsored Research Revenue by Province, 1997-98 to 2002-03 (millions of dollars)

	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	% Change
NL	27.0	27.9	34.0	34.3	34.9	42.8	58.6
PEI	2.2	3.0	2.3	5.2	5.2	6.7	199.2
NS	53.7	55.6	93.3	89.3	95.8	103.1	91.9
NB	26.0	30.2	31.8	28.6	33.1	33.6	29.3
PQ	544.8	637.3	817.1	906.8	1,091.0	1,278.8	134.7
ON	797.0	876.5	1,055.2	1,348.7	1,479.7	1,628.0	104.3
MN	62.3	69.3	80.1	105.7	107.0	134.7	116.1
SK	51.4	57.7	81.8	114.6	140.3	135.3	163.2
AB	242.3	285.6	344.9	418.0	475.2	447.6	84.7
BC	179.1	190.2	229.1	266.7	308.4	472.0	163.6
CDA	**1,985.9**	**2,233.1**	**2,769.6**	**3,317.9**	**3,770.5**	**4,282.5**	**115.6**

Table 27. Total Sponsored Research Revenue by University, 1997-98 to 2003-04 (thousands of dollars)

	University of Alberta	University of Calgary	The University of Lethbridge	Athabasca University	**Total**
1997-98	109,926	81,182	2,717	575	**194,400**
1998-99	126,368	100,935	3,295	334	**230,932**
1999-00	172,515	123,452	3,664	323	**299,954**
2000-01	211,102	152,023	5,281	407	**368,813**
2001-02	258,445	171,478	6,714	825	**437,462**
2002-03	260,267	164,708	7,343	1,868	**434,186**
2003-04	325,573	246,756	9,832	1,543	**583,704**
% Change	196.2	204.0	261.9	168.4	**200.3**

Table 28. Gross Expenditures on Research and Development by Province, 1997 to 2001 (millions of dollars)

	1997	1998	1999	2000	2001	% Change
NL	103	119	127	138	142	37.9
PEI	16	23	26	36	35	118.8
NS	257	311	346	368	365	42.0
NB	128	157	166	160	154	20.3
PQ	3,932	4,325	4,885	5,593	6,159	56.6
ON	6,790	7,453	8,096	9,429	10,297	51.6
MN	267	299	384	411	453	69.7
SK	284	278	323	374	391	37.7
AB	1,049	1,183	1,164	1,336	1,511	44.0
BC	1,038	1,113	1,298	1,617	1,679	61.8
CDA	**14,636**	**16,077**	**17,631**	**20,359**	**22,116**	**51.1**

Note: Provincial numbers do not sum to Canada numbers due to research and development expenditures in the national capital region (which are not allocated to either Québec or Ontario, and are not individually identified).

Table 29. Higher Education Research and Development Expenditures by Province, 1997-98 to 2002-03 (millions of dollars)

	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	% Change
NL	61.2	72.0	78.6	83.4	89.4	94.3	54.1
PEI	5.9	11.4	11.4	15.7	15.7	18.7	216.9
NS	125.0	164.1	199.6	199.9	208.6	224.6	79.7
NB	57.4	80.4	89.0	88.2	88.2	98.9	72.3
PQ	1,131.6	1,273.8	1,532.9	1,628.6	1,778.5	2,166.9	91.5
ON	1,554.2	1,699.7	1,908.0	2,316.2	2,575.9	2,877.7	85.2
MN	108.3	130.8	157.6	189.6	205.9	224.6	107.4
SK	118.9	138.4	176.1	228.2	235.6	259.1	117.9
AB	357.7	408.1	490.9	546.0	664.9	726.8	103.2
BC	358.9	390.8	437.6	497.5	561.5	737.2	105.4
CDA	**3,879.1**	**4,369.5**	**5,081.7**	**5,793.3**	**6,424.2**	**7,428.8**	**91.5**

Table 30. Gross Expenditures on Research and Development as a Percentage of GDP by Province, 1997 to 2001

	1997	1998	1999	2000	2001	% Change
NL	1.0	1.1	1.0	1.0	1.0	2.3
PEI	0.6	0.8	0.8	1.1	1.0	76.3
NS	1.3	1.5	1.5	1.5	1.4	11.0
NB	0.8	0.9	0.9	0.8	0.7	-2.4
PQ	2.1	2.2	2.3	2.5	2.6	26.9
ON	1.9	2.0	2.0	2.1	2.3	20.3
MN	0.9	1.0	1.2	1.2	1.3	43.0
SK	1.0	0.9	1.0	1.1	1.2	19.5
AB	1.0	1.1	1.0	0.9	1.0	2.0
BC	0.9	1.0	1.1	1.2	1.3	40.1
CDA	**1.7**	**1.8**	**1.8**	**1.9**	**2.0**	**20.4**